

**APPENDIX C – CROSS-SECTIONS**  
**Stream Condition Inventory-**  
**Cross-section Discussion**

12/22/03

**Background:**

The Feather River Coordinated Resource Management (FRCRM) group, under a variety of funding programs, has been conducting watershed trend monitoring since 1999. This monitoring has utilized a variety of metrics at multiple spatial and temporal scales. The purpose of this monitoring is to ascertain trends in watershed function. Utilization of multiple metrics over a range of time and space scales allows for analyses that incorporate both qualitative and quantitative data and observations. The following is a discussion of quantified cross-section data buttressed with qualitative observation of sediment related inputs (discharge and sediment supply) at the watershed scale over the previous decade.

**Flow Regime/Sediment Input Discussion:**

The Feather River watershed has experienced two (2) distinct climatic regimes over the last decade. Water year (WY) 1992-3 was the first year of a six-year period (WY92-WY98) of much above normal precipitation. WY93-4 was the only dry year in the period. This period was characterized by frequent moderate to large flood events which culminated in the 1997 flood of record. WY1999-0 ushered in a four-year period (WY99-0 to present) of below normal precipitation with no flood events\*. WY 2002-3 was the only year with normal precipitation, largely due to a very wet spring, which maintained an extended period of elevated in-channel flows.

Significant Flood Dates: Jan. '93, Jan. '95, Mar. '95, May '95, Jan. '97

**Table #1- Total Annual Precipitation (inches of water); (Wilcox data, 1995-03, Genesee, Ca).**

WY 95-96	WY 96-97	WY 97-98	WY 98-99	WY 99-00	WY 00-01	WY 01-02	WY 02-03	WY Ave.
54.55	58.90	60.70	47.80	43.65	23.60	33.60	49.60	46.55

Typically, large floods deliver significant sediment and debris inputs to the channel system throughout the watershed. Depending on magnitude and frequency these inputs result in a dynamic channel response of interrelated processes. The 1997 flood of record (~48,000 cfs./Indian Cr. @ Crescent Mills) affected each subwatershed differently. However, the net result was locally catastrophic delivery of sediments and debris from tributaries to the mainstem channels (Indian Creek, Spanish Creek, NFFR and MFFR). The more frequent, longer duration low flows begin a process of re-working the deposited materials concurrent with ongoing vegetation recovery.

\*\*"No flood events" as used in this context means no flows exceeding a 2-year event at the watershed scale.

**Sampling Methodologies:**

The FRCRM established three (3) permanent cross-sections at each of the eighteen (18) monitoring reaches. An additional five (5) cross-sections are randomly selected and surveyed during each sampling period. These 5 cross-sections are not monumented and the location varies from period to period. The permanent cross-sections are intended to accurately represent changes in channel form

over time. The random cross-sections are intended to generally characterize overall channel condition. This discussion is focused on the permanent cross-sections, the data presented and observations on the efficacy of the survey methodology.

### **Results/Methodology Discussion:**

Cross-section analyses typically use metrics that represent the bankfull channel form: bankfull width, bankfull mean depth, cross-sectional area and W/D ratio. Bankfull channel morphology is an inter-relational state of dynamic response to both the flow regime and the sediment supply. These responses are also a function of the structural attributes that evolve along the channel as part of the dynamism. As noted above, these cross-sections have all been surveyed in a period of drier years, which followed an abnormally wet five-year period. Typically, multi-year dry periods result in the establishment and hardening of the vegetative structure of the channel system. Un-interrupted, this vegetative response can set the stage for significant channel response/improvement when high flows and the attendant sediment supply resume.

The three biennial data sets represented here offer an excellent baseline for determining change when high flows/sediment supply resumes. The data has been summarized in the attached sheets with two (2) stratifications. Reach and year stratify the first data set. The second data set is stratified by cross-section. There were no discernible trend changes at either the reach or watershed scale.

The data does show significant variability from sample period to sample period regardless of stratification. This can generally be attributed to the subjective determination of the bankfull elevation. It is likely that the dry period vegetative response influenced some of the bankfull determinations leading to considerable ‘noise’ in data sets that generally did not, and would not be expected to, change significantly over the five year sampling period.

Bankfull determination has always been the controversial lynchpin in geomorphic channel investigations. Generally, determinations that use a congruence of physical and biological indices are the most reliable. An excellent reference for survey crews to use would be, *Stream Channel Reference Sites, USDA-FS General Technical Report, RM-245; Harrelson, Rawlins and Potyondy*. Further, a semi-permanent stake (e.g. 12” length, 3/8” rebar) driven in to ground level at the bankfull elevation may help reduce the subjective noise. These stakes could be lost in high flow events, however, it may be worth the risk to ‘tighten’ the data sets on this critical parameter..

**STREAM CONDITION INVENTORY- CROSS-SECTION ANALYSIS (page 1 of 6)**

### **Comparison of Selected Geomorphic Values (derived from 6 of 20 data sets):**

## Stratified by Reach--

<u>Reach/YR/X-s#</u>	<u>A<sub>bkf</sub> (ft<sup>2</sup>)</u>	<u>A<sub>flp</sub>(ft<sup>2</sup>)</u>	<u>W<sub>bkf</sub> (ft)</u>	<u>D<sub>mean</sub>(ft)</u>	<u>W/D ratio</u>	
<b>Wolf Cr./ '99/ #1</b>	32.5	132.5	19.6	1.66	11.82	
<b>Wolf Cr./ '99/ #2</b>	40	60	27.3	1.47	18.63	
<b>Wolf Cr./ '99/ #3</b>	<u>27.5</u>	<u>67.5</u>	<u>23.5</u>	<u>1.17</u>	<u>20.08</u>	
<b>Average</b>	<b>33.33</b>	<b>86.67</b>	<b>23.47</b>	<b>1.43</b>	<b>16.84</b>	
<b>Wolf Cr./ '01/ #1</b>	42.5	165	21	2.02	10.38	
<b>Wolf Cr./ '01/ #2</b>	50	130	28.8	1.74	16.59	
<b>Wolf Cr./ '01/ #3</b>	<u>35</u>	<u>77.5</u>	<u>20.05</u>	<u>1.75</u>	<u>11.49</u>	
<b>Average</b>	<b>42.50</b>	<b>124.17</b>	<b>23.28</b>	<b>1.84</b>	<b>12.82</b>	
<b>Wolf Cr./ '03/ #1</b>	25	60	17.55	1.42	12.32	
<b>Wolf Cr./ '03/ #2</b>	60	187.5	25.8	2.33	11.09	
<b>Wolf Cr./ '03/ #3</b>	<u>32.5</u>	<u>80</u>	<u>24.8</u>	<u>1.31</u>	<u>18.92</u>	
<b>Average</b>	<b>39.17</b>	<b>109.17</b>	<b>22.72</b>	<b>1.69</b>	<b>14.11</b>	

## Stratified by Cross-section--

<u>Reach/X-s#/ YR</u>	<u>A<sub>bkf</sub> (ft<sup>2</sup>)</u>	<u>A<sub>flp</sub>(ft<sup>2</sup>)</u>	<u>W<sub>bkf</sub> (ft)</u>	<u>D<sub>mean</sub>(ft)</u>	<u>W/D ratio</u>	
<b>Wolf Cr./ #1/ '99</b>	32.5	60	19.6	1.66	11.82	
<b>Wolf Cr./ #1/ '01</b>	42.5	165	21	2.02	10.38	
<b>Wolf Cr./ #1/ '03</b>	<u>25</u>	<u>60</u>	<u>17.55</u>	<u>1.42</u>	<u>12.32</u>	
<b>Average</b>	<b>33.33</b>	<b>95.00</b>	<b>19.38</b>	<b>1.70</b>	<b>11.51</b>	
<b>Wolf Cr./ #2/ '99</b>	40	60	27.3	1.47	18.63	
<b>Wolf Cr./ #2/ '01</b>	50	130	28.8	1.74	16.59	
<b>Wolf Cr./ #2/ '03</b>	<u>60</u>	<u>187.5</u>	<u>25.8</u>	<u>2.33</u>	<u>11.09</u>	
<b>Average</b>	<b>50.00</b>	<b>125.83</b>	<b>27.30</b>	<b>1.84</b>	<b>15.44</b>	
<b>Wolf Cr./ #3/ '99</b>	27.5	67.5	23.5	1.17	20.08	
<b>Wolf Cr./ #3/ '01</b>	35	77.5	20.05	1.75	11.49	
<b>Wolf Cr./ #3/ '03</b>	<u>32.5</u>	<u>80</u>	<u>24.8</u>	<u>1.31</u>	<u>18.92</u>	
<b>Average</b>	<b>31.67</b>	<b>75.00</b>	<b>22.78</b>	<b>1.41</b>	<b>16.83</b>	

## STREAM CONDITION INVENTORY- CROSS-SECTION ANALYSIS (page 2 of 6)

### Comparison of Selected Geomorphic Values (derived from 6 of 20 data sets):

#### Stratified by Reach--

<u>Reach/YR/X-s#</u>	<u>A<sub>bkf</sub> (ft<sup>2</sup>)</u>	<u>A<sub>fip</sub>(ft<sup>2</sup>)</u>	<u>W<sub>bkf</sub> (ft)</u>	<u>D<sub>mean</sub>(ft)</u>	<u>W/D ratio</u>
Lights Cr./ '99/ #1	87.5	137.5	47.2	1.85	25.46
Lights Cr./ '99/ #2	85	130	48.8	1.74	28.02
Lights Cr./ '99/ #3	<u>85</u>	<u>260</u>	<u>53.7</u>	<u>1.58</u>	<u>33.93</u>
Average	<b>85.83</b>	<b>175.83</b>	<b>49.90</b>	<b>1.73</b>	<b>29.13</b>
Lights Cr./ '01/ #1	55	82.5	49.95	1.10	45.36
Lights Cr./ '01/ #2	30	52.5	33.5	0.90	37.41
Lights Cr./ '01/ #3	<u>37.5</u>	<u>145</u>	<u>20.1</u>	<u>1.87</u>	<u>10.77</u>
Average	<b>40.83</b>	<b>93.33</b>	<b>34.52</b>	<b>1.29</b>	<b>31.18</b>
Lights Cr./ '03/ #1	42.5	82.5	46.4	0.92	50.66
Lights Cr./ '03/ #2	42.5	87.5	40	1.06	37.65
Lights Cr./ '03/ #3	<u>35</u>	<u>132.5</u>	<u>22.4</u>	<u>1.56</u>	<u>14.34</u>
Average	<b>40.00</b>	<b>100.83</b>	<b>36.27</b>	<b>1.18</b>	<b>34.21</b>

#### Stratified by Cross-section--

<u>Reach/X-s#/ YR</u>	<u>A<sub>bkf</sub> (ft<sup>2</sup>)</u>	<u>A<sub>fip</sub>(ft<sup>2</sup>)</u>	<u>W<sub>bkf</sub> (ft)</u>	<u>D<sub>mean</sub>(ft)</u>	<u>W/D ratio</u>
Lights Cr./ #1/ '99	87.5	137.5	47.2	1.85	25.46
Lights Cr./ #1/ '01	55	82.5	49.95	1.10	45.36
Lights Cr./ #1/ '03	<u>42.5</u>	<u>82.5</u>	<u>46.4</u>	<u>0.92</u>	<u>50.66</u>
Average	<b>61.67</b>	<b>100.83</b>	<b>47.85</b>	<b>1.29</b>	<b>40.49</b>
Lights Cr./ #2/ '99	85	130	48.8	1.74	28.02
Lights Cr./ #2/ '01	30	52.5	33.5	0.90	37.41
Lights Cr./ #2/ '03	<u>42.5</u>	<u>87.5</u>	<u>40</u>	<u>1.06</u>	<u>37.65</u>
Average	<b>52.50</b>	<b>90.00</b>	<b>40.77</b>	<b>1.23</b>	<b>34.36</b>
Lights Cr./ #3/ '99	85	260	53.7	1.58	33.93
Lights Cr./ #3/ '01	37.5	145	20.1	1.87	10.77
Lights Cr./ #3/ '03	<u>35</u>	<u>132.5</u>	<u>22.4</u>	<u>1.56</u>	<u>14.34</u>
Average	<b>52.50</b>	<b>179.17</b>	<b>32.07</b>	<b>1.67</b>	<b>19.68</b>

## STREAM CONDITION INVENTORY- CROSS-SECTION ANALYSIS (page 3 of 6)

### Comparison of Selected Geomorphic Values (derived from 6 of 20 data sets):

#### Stratified by Reach--

<u>Reach/YR/X-s#</u>	<u>A<sub>bkf</sub> (ft<sup>2</sup>)</u>	<u>A<sub>fip</sub>(ft<sup>2</sup>)</u>	<u>W<sub>bkf</sub> (ft)</u>	<u>D<sub>mean</sub>(ft)</u>	<u>W/D ratio</u>
<b>Greenhorn/ '99/ #1</b>	57.5	180	43.9	1.31	33.52
<b>Greenhorn/ '99/ #2</b>	90	200	40	2.25	17.78
<b>Greenhorn/ '99/ #3</b>	<u>50</u>	<u>107.5</u>	<u>46.8</u>	<u>1.07</u>	<u>43.80</u>
<b>Average</b>	<b>65.83</b>	<b>162.50</b>	<b>43.57</b>	<b>1.54</b>	<b>31.70</b>
<b>Greenhorn/ '01/ #1</b>	32.5	72.5	40.3	0.81	49.97
<b>Greenhorn/ '01/ #2</b>	52.5	57.5	35.4	1.48	23.87
<b>Greenhorn/ '01/ #3</b>	<u>57.5</u>	<u>115</u>	<u>44.1</u>	<u>1.30</u>	<u>33.82</u>
<b>Average</b>	<b>47.50</b>	<b>81.67</b>	<b>39.93</b>	<b>1.20</b>	<b>35.89</b>
<b>Greenhorn/ '03/ #1</b>	22.5	87.5	39.1	0.58	67.95
<b>Greenhorn/ '03/ #2</b>	90	162.5	38.9	2.31	16.81
<b>Greenhorn/ '03/ #3</b>	<u>57.5</u>	<u>142.5</u>	<u>45.9</u>	<u>1.25</u>	<u>36.64</u>
<b>Average</b>	<b>56.67</b>	<b>130.83</b>	<b>41.30</b>	<b>1.38</b>	<b>40.47</b>

#### Stratified by Cross-section--

<u>Reach/X-s#/ YR</u>	<u>A<sub>bkf</sub> (ft<sup>2</sup>)</u>	<u>A<sub>fip</sub>(ft<sup>2</sup>)</u>	<u>W<sub>bkf</sub> (ft)</u>	<u>D<sub>mean</sub>(ft)</u>	<u>W/D ratio</u>
<b>Greenhorn/ #1/ '99</b>	57.5	180	43.9	1.31	33.52
<b>Greenhorn/ #1/ '01</b>	32.5	72.5	40.3	0.81	49.97
<b>Greenhorn/ #1/ '03</b>	<u>22.5</u>	<u>87.5</u>	<u>39.1</u>	<u>0.58</u>	<u>67.95</u>
<b>Average</b>	<b>37.50</b>	<b>113.33</b>	<b>41.10</b>	<b>0.90</b>	<b>50.48</b>
<b>Greenhorn/ #2/ '99</b>	90	200	40	2.25	17.78
<b>Greenhorn/ #2/ '01</b>	52.5	57.5	35.4	1.48	23.87
<b>Greenhorn/ #2/ '03</b>	<u>90</u>	<u>162.5</u>	<u>38.9</u>	<u>2.31</u>	<u>16.81</u>
<b>Average</b>	<b>60.00</b>	<b>123.61</b>	<b>38.83</b>	<b>1.54</b>	<b>30.71</b>
<b>Greenhorn/ #3/ '99</b>	50	107.5	46.8	1.07	43.80
<b>Greenhorn/ #3/ '01</b>	57.5	115	44.1	1.30	33.82
<b>Greenhorn/ #3/ '03</b>	<u>57.5</u>	<u>142.5</u>	<u>45.9</u>	<u>1.25</u>	<u>36.64</u>
<b>Average</b>	<b>55.00</b>	<b>121.67</b>	<b>45.60</b>	<b>1.21</b>	<b>38.09</b>

## STREAM CONDITION INVENTORY- CROSS-SECTION ANALYSIS (page 4 of 6)

### Comparison of Selected Geomorphic Values(derived from 6 of 20 data sets):

#### Stratified by Reach--

<u>Reach/YR/X-s#</u>	<u>A<sub>bkf</sub> (ft<sup>2</sup>)</u>	<u>A<sub>fip</sub>(ft<sup>2</sup>)</u>	<u>W<sub>bkf</sub> (ft)</u>	<u>D<sub>mean</sub>(ft)</u>	<u>W/D ratio</u>
Sulphur Cr./ '99/ #1	60	142.5	49.3	1.22	40.51
Sulphur Cr./ '99/ #2	32.5	80	33.4	0.97	34.32
Sulphur Cr./ '99/ #3	<u>62.5</u>	<u>165</u>	<u>53.8</u>	<u>1.16</u>	<u>46.31</u>
Average	<b>51.67</b>	<b>129.17</b>	<b>45.50</b>	<b>1.12</b>	<b>40.38</b>
Sulphur Cr./ '01/ #1	40	117.5	45.4	0.88	51.53
Sulphur Cr./ '01/ #2	42.5	90	35.1	1.21	28.99
Sulphur Cr./ '01/ #3	<u>62.5</u>	<u>205</u>	<u>52.1</u>	<u>1.20</u>	<u>43.43</u>
Average	<b>48.33</b>	<b>137.50</b>	<b>44.20</b>	<b>1.10</b>	<b>41.32</b>
Sulphur Cr./ '03/ #1	47.5	135	46.1	1.03	44.74
Sulphur Cr./ '03/ #2	42.5	97.5	37.2	1.14	32.56
Sulphur Cr./ '03/ #3	<u>72.5</u>	<u>190</u>	<u>55.2</u>	<u>1.31</u>	<u>42.03</u>
Average	<b>54.17</b>	<b>140.83</b>	<b>46.17</b>	<b>1.16</b>	<b>39.78</b>

#### Stratified by Cross-section--

<u>Reach/X-s#/ YR</u>	<u>A<sub>bkf</sub> (ft<sup>2</sup>)</u>	<u>A<sub>fip</sub>(ft<sup>2</sup>)</u>	<u>W<sub>bkf</sub> (ft)</u>	<u>D<sub>mean</sub>(ft)</u>	<u>W/D ratio</u>
Sulphur Cr./ #1/ '99	60	142.5	49.3	1.22	40.51
Sulphur Cr./ #1/ '01	40	117.5	45.4	0.88	51.53
Sulphur Cr./ #1/ '03	<u>47.5</u>	<u>135</u>	<u>46.1</u>	<u>1.03</u>	<u>44.74</u>
Average	<b>49.17</b>	<b>131.67</b>	<b>46.93</b>	<b>1.04</b>	<b>45.59</b>
Sulphur Cr./ #2/ '99	32.5	80	33.4	0.97	34.32
Sulphur Cr./ #2/ '01	42.5	90	35.1	1.21	28.99
Sulphur Cr./ #2/ '03	<u>42.5</u>	<u>97.5</u>	<u>37.2</u>	<u>1.14</u>	<u>32.56</u>
Average	<b>39.17</b>	<b>89.17</b>	<b>35.23</b>	<b>1.11</b>	<b>31.96</b>
Sulphur Cr./ #3/ '99	62.5	165	53.8	1.16	46.31
Sulphur Cr./ #3/ '01	62.5	205	52.1	1.20	43.43
Sulphur Cr./ #3/ '03	<u>72.5</u>	<u>190</u>	<u>55.2</u>	<u>1.31</u>	<u>42.03</u>
Average	<b>65.83</b>	<b>186.67</b>	<b>53.70</b>	<b>1.22</b>	<b>43.92</b>

## STREAM CONDITION INVENTORY- CROSS-SECTION ANALYSIS (page 5 of 6)

### Comparison of Selected Geomorphic Values (derived from 6 of 20 data sets):

#### Stratified by Reach--

<u>Reach/YR/X-s#</u>	<u>A<sub>bkf</sub> (ft<sup>2</sup>)</u>	<u>A<sub>fip</sub>(ft<sup>2</sup>)</u>	<u>W<sub>bkf</sub> (ft)</u>	<u>D<sub>mean</sub>(ft)</u>	<u>W/D ratio</u>
<b>EBNFFR@NF/ '99/ #1</b>	200	360	98.6	2.03	48.61
<b>EBNFFR@NF/ '99/ #2</b>	320	1137.5	115.3	2.78	41.54
<b>EBNFFR@NF/ '99/ #3</b>	<u>440</u>	<u>872.5</u>	<u>140.6</u>	<u>3.13</u>	<u>44.93</u>
<b>Average</b>	<b>320.00</b>	<b>790.00</b>	<b>118.17</b>	<b>2.64</b>	<b>45.03</b>
<b>EBNFFR@NF/ '01/ #1</b>	335	552.5	124.2	2.70	46.05
<b>EBNFFR@NF/ '01/ #2</b>	415	1232.5	129.3	3.21	40.29
<b>EBNFFR@NF/ '01/ #3</b>	<u>380</u>	<u>782.5</u>	<u>167.6</u>	<u>2.27</u>	<u>73.92</u>
<b>Average</b>	<b>376.67</b>	<b>855.83</b>	<b>140.37</b>	<b>2.72</b>	<b>53.42</b>
<b>EBNFFR@NF/ '03/ #1</b>	417.5	677.5	122.4	3.41	35.88
<b>EBNFFR@NF/ '03/ #2</b>	425	1275	130.5	3.26	40.07
<b>EBNFFR@NF/ '03/ #3</b>	<u>385</u>	<u>790</u>	<u>152.1</u>	<u>2.53</u>	<u>60.09</u>
<b>Average</b>	<b>409.17</b>	<b>914.17</b>	<b>135.00</b>	<b>3.07</b>	<b>45.35</b>

#### Stratified by Cross-section--

<u>Reach/X-s#/ YR</u>	<u>A<sub>bkf</sub> (ft<sup>2</sup>)</u>	<u>A<sub>fip</sub>(ft<sup>2</sup>)</u>	<u>W<sub>bkf</sub> (ft)</u>	<u>D<sub>mean</sub>(ft)</u>	<u>W/D ratio</u>
<b>EBNFFR@NF/ #1/ '99</b>	200	360	98.6	2.03	48.61
<b>EBNFFR@NF/ #1/ '01</b>	335	552.5	124.2	2.70	46.05
<b>EBNFFR@NF/ #1/ '03</b>	<u>417.5</u>	<u>677.5</u>	<u>122.4</u>	<u>3.41</u>	<u>35.88</u>
<b>Average</b>	<b>317.50</b>	<b>530.00</b>	<b>115.07</b>	<b>2.71</b>	<b>43.51</b>
<b>EBNFFR@NF/ #2/ '99</b>	320	1137.5	115.3	2.78	41.54
<b>EBNFFR@NF/ #2/ '01</b>	415	1232.5	129.3	3.21	40.29
<b>EBNFFR@NF/ #2/ '03</b>	<u>425</u>	<u>1275</u>	<u>130.5</u>	<u>3.26</u>	<u>40.07</u>
<b>Average</b>	<b>386.67</b>	<b>1215.00</b>	<b>125.03</b>	<b>3.08</b>	<b>40.63</b>
<b>EBNFFR@NF/ #3/ '99</b>	440	872.5	140.6	3.13	44.93
<b>EBNFFR@NF/ #3/ '01</b>	380	782.5	167.6	2.27	73.92
<b>EBNFFR@NF/ #3/ '03</b>	<u>385</u>	<u>790</u>	<u>152.1</u>	<u>2.53</u>	<u>60.09</u>
<b>Average</b>	<b>401.67</b>	<b>815.00</b>	<b>153.43</b>	<b>2.64</b>	<b>59.65</b>

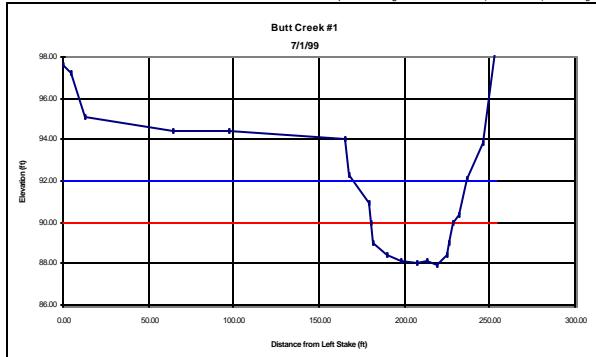
**STREAM CONDITION INVENTORY- CROSS-SECTION ANALYSIS (page 6 of 6)****Comparison of Selected Geomorphic Values (derived from 6 of 20 data sets):****Stratified by Reach--**

<u>Reach/YR/X-s#</u>	<u>A<sub>bkf</sub> (ft<sup>2</sup>)</u>	<u>A<sub>fip</sub>(ft<sup>2</sup>)</u>	<u>W<sub>bkf</sub> (ft)</u>	<u>D<sub>mean</sub>(ft)</u>	<u>W/D ratio</u>
<b>MFFR @Nelson/ '99/ #1</b>	202.5	422.5	77.5	2.61	29.66
<b>MFFR @Nelson/ '99/ #2</b>	320	552.5	127.9	2.50	51.12
<b>MFFR @Nelson/ '99/ #3</b>	<u>150</u>	<u>425</u>	<u>103.5</u>	<u>1.45</u>	<u>71.42</u>
<b>Average</b>	<b>224.17</b>	<b>466.67</b>	<b>102.97</b>	<b>2.19</b>	<b>50.73</b>
<b>MFFR @Nelson/ '01/ #1</b>	207.5	427.5	77.2	2.69	28.72
<b>MFFR @Nelson/ '01/ #2</b>	325	547.5	126.8	2.56	49.47
<b>MFFR @Nelson/ '01/ #3</b>	<u>202.5</u>	<u>552.5</u>	<u>107.75</u>	<u>1.88</u>	<u>57.33</u>
<b>Average</b>	<b>245.00</b>	<b>509.17</b>	<b>103.92</b>	<b>2.38</b>	<b>45.18</b>
<b>MFFR @Nelson/ '03/ #1</b>	210	415	77	2.73	28.23
<b>MFFR @Nelson/ '03/ #2</b>	297.5	922.5	124.4	2.39	52.02
<b>MFFR @Nelson/ '03/ #3</b>	<u>135</u>	<u>422.5</u>	<u>71.2</u>	<u>1.90</u>	<u>37.55</u>
<b>Average</b>	<b>214.17</b>	<b>586.67</b>	<b>90.87</b>	<b>2.34</b>	<b>39.27</b>

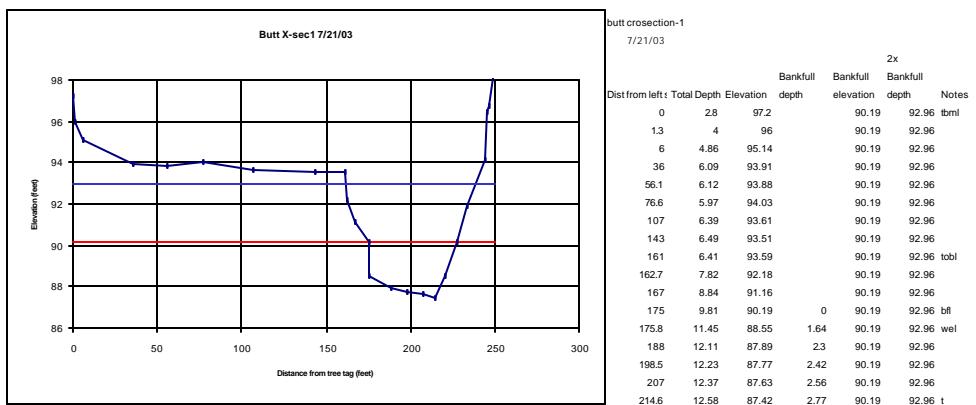
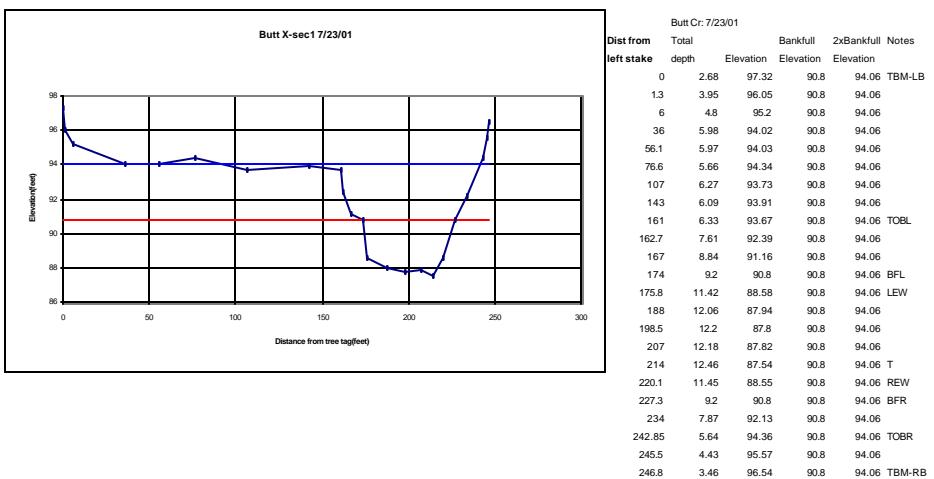
**Stratified by Cross-section--**

<u>Reach/X-s#/ YR</u>	<u>A<sub>bkf</sub> (ft<sup>2</sup>)</u>	<u>A<sub>fip</sub>(ft<sup>2</sup>)</u>	<u>W<sub>bkf</sub> (ft)</u>	<u>D<sub>mean</sub>(ft)</u>	<u>W/D ratio</u>
<b>MFFR @Nelson/ #1/ '99</b>	202.5	422.5	77.5	2.61	29.66
<b>MFFR @Nelson/ #1/ '01</b>	207.5	427.5	77.2	2.69	28.72
<b>MFFR @Nelson/ #1/ '03</b>	<u>210</u>	<u>415</u>	<u>77</u>	<u>2.73</u>	<u>28.23</u>
<b>Average</b>	<b>206.67</b>	<b>421.67</b>	<b>77.23</b>	<b>2.68</b>	<b>28.87</b>
<b>MFFR @Nelson/ #2/ '99</b>	320	552.5	127.9	2.50	51.12
<b>MFFR @Nelson/ #2/ '01</b>	325	547.5	126.8	2.56	49.47
<b>MFFR @Nelson/ #2/ '03</b>	<u>297.5</u>	<u>922.5</u>	<u>124.4</u>	<u>2.39</u>	<u>52.02</u>
<b>Average</b>	<b>314.17</b>	<b>674.17</b>	<b>126.37</b>	<b>2.49</b>	<b>50.87</b>
<b>MFFR @Nelson/ #3/ '99</b>	150	425	103.5	1.45	71.42
<b>MFFR @Nelson/ #3/ '01</b>	202.5	552.5	107.75	1.88	57.33
<b>MFFR @Nelson/ #3/ '03</b>	<u>135</u>	<u>422.5</u>	<u>71.2</u>	<u>1.90</u>	<u>37.55</u>
<b>Average</b>	<b>162.50</b>	<b>466.67</b>	<b>94.15</b>	<b>1.74</b>	<b>55.43</b>

UTM X-coord = 652357.9  
 all measurements in feet  
 TBM on ponderosa tree on left bank with orange diamond tag  
 compass bearing LB-TBM to RB tree (3rd from left) = S13degreesW  
 UTM Y coord = 4451554.5



**Dark Blue Line w/Markers=Basic Cross Section**



TOPipe=Top of pipe/bench mark

LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TPool=Top of pool

S-MAX=Max depth sediment lens

LB=Left bank

RB=Right bank

TOB=Top of bank

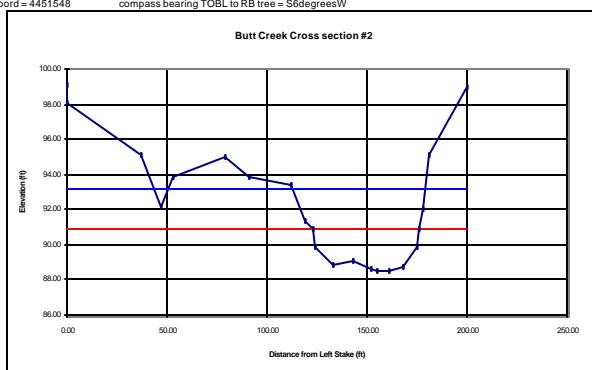
BF=Bankfull

T=Thalweg

Three Year SUMMARY		Mean	Max	Width:	Flood-	Entrench-
Year	Cross- section	Bankfull Width	Bankfull Depth	Bankfull Depth	prone width	ment Ratio
1999	1	48.5	1.6	2.03	30.3	70.16 1.45
2001	1	53.30	2.36	3.26	22.58	186.65 3.50
2003	1	52.20	1.91	2.77	27.29	76.90 1.47

UTM X-coord = 652225.9 TBM on ponderosa pine on LB w/ orange diamond tag  
 UTM Y-coord = 4451548 compass bearing TOBL to RB tree = S6degreesW

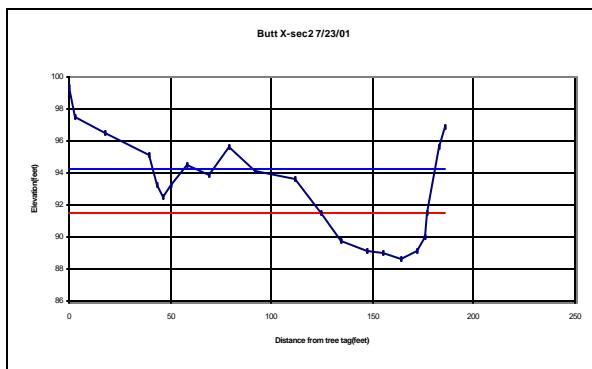
1-Jul-99 all measurements in feet



Blue Line=2x Bankfull Elev      Red Line=Mean Bankfull Elev

Dark Blue Line w/Markers=Basic Cross Section

Dist. From Left Stake	Total Depth	Bankfull Depth	2x Bankfull Depth	Elevation
0.00	99.14	90.84	93.15	
0.01	98.10	90.84	93.15	
36.60	95.15	90.84	93.15	
46.90	92.20	90.84	93.15	
52.60	93.88	90.84	93.15	
79.00	94.99	90.84	93.15	
91.20	93.91	90.84	93.15	
112.20	93.40	90.84	93.15	
118.70	91.36	90.84	93.15	
123.40	90.84	90.84	93.15	
124.20	89.84	90.84	93.15	
132.80	88.82	90.84	93.15	
143.00	89.07	90.84	93.15	
152.20	88.60	90.84	93.15	
154.90	88.53	90.84	93.15	
161.10	88.56	90.84	93.15	
167.70	88.76	90.84	93.15	
175.40	89.84	90.84	93.15	
175.80	90.84	90.84	93.15	
177.80	92.00	90.84	93.15	
181.30	95.06	90.84	93.15	
200.00	98.98	90.84	93.15	



Dist from left stake	Total depth	Bankfull Elevation	2x Bankfull Elevation	Notes
0	0.57	99.43	91.45	94.2 TBM-LB
3	2.51	97.49	91.45	94.2
18	3.56	96.44	91.45	94.2
40	4.92	95.08	91.45	94.2
43.6	6.75	93.25	91.45	94.2
46.3	7.56	92.44	91.45	94.2
50.1	6.8	93.2	91.45	94.2
58.3	5.49	94.51	91.45	94.2
69.2	6.15	93.85	91.45	94.2
79.3	4.43	95.57	91.45	94.2
91.9	5.9	94.1	91.45	94.2
112	6.41	93.59	91.45	94.2 TOBL
124.6	8.55	91.45	91.45	94.2 BFL
134	10.31	89.69	91.45	94.2 LEW
147	10.9	89.1	91.45	94.2
155.6	10.97	89.03	91.45	94.2
164	11.34	88.66	91.45	94.2 T
171.8	10.85	89.15	91.45	94.2
176	10.04	89.96	91.45	94.2 REW
177.3	8.55	91.45	91.45	94.2 BFR
182.5	4.37	95.63	91.45	94.2 TOBR
185.6	3.16	96.84	91.45	94.2 TBM-RB



Dist from left stake	Total Depth	Bankfull Depth	Total Bankfull Elevation	Bankfull Elevation	2x Bankfull Elevation	Notes
0	3.15		96.85	89.4	92.73	tbl
3	5.12		94.88	89.4	92.73	
18	6.29		93.71	89.4	92.73	
40	7.41		92.59	89.4	92.73	
41.5	8.86		91.14	89.4	92.73	
46.7	10.12		89.88	89.4	92.73	trib
53	9.13		90.87	89.4	92.73	
58.3	8.13		91.87	89.4	92.73	
69.2	8.95		91.05	89.4	92.73	
79.3	7.54		92.46	89.4	92.73	
91.5	8.22		91.78	89.4	92.73	
112	9.28		90.72	89.4	92.73	tobl
117	10.24		89.76	89.4	92.73	
117.5	10.6	0	89.4	89.4	92.73	bfl
131.3	12.68	2.08	87.32	89.4	92.73	wel
147	13.47	2.87	86.53	89.4	92.73	
155.6	13.81	3.21	86.19	89.4	92.73	
163.5	13.93	3.33	86.07	89.4	92.73	t
170.4	13.2	2.6	86.8	89.4	92.73	
175.4	13.71	3.11	86.29	89.4	92.73	
176.7	12.46	1.86	87.54	89.4	92.73	wer
178.5	10.6	0	89.4	89.4	92.73	bfr
182.5	6.75		93.25	89.4	92.73	
199	3.78		96.22	89.4	92.73	

TOPipe=Top of pipe/bench mark

Three Year SUMMARY		Mean	Max	Width:	Flood-	Entrench-
Year	Cross- section	Bankfull Width	Bankfull Depth	Depth	prone	ment
1999	2	52.4	1.84	2.31	28.5	66.94
2001	2	52.70	1.87	2.79	28.18	144.00
2003	2	61.00	2.38	3.33	25.60	142.20
					2.73	2.33

TBM=Temporary bench mark

REW=Right edge of water

MPD=Maximum pool depth

TBL=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TOPool=Top of pool

S-MAX=Max depth sediment lens

LB=Left bank

RB=Right bank

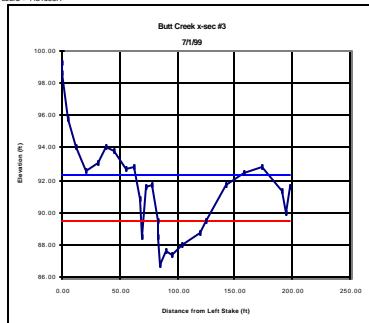
TBL=Top of bank

BF=Bankfull

T=Thalweg

UTM X-coord = 652072.2 all measurements in feet

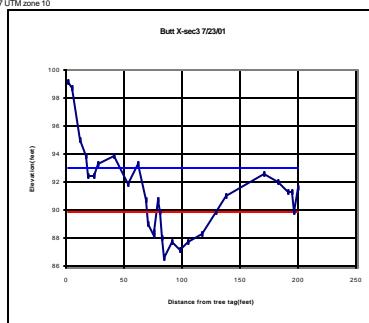
UTM Y-coord = 4451608.4



Blue Line=2x Bankfull Elev Red Line=Mean Bankfull Elev Dark Blue Line w/Markers=Basic Cross Section

TBM on ponderosa tree LB LBTBM to RB bearing = S198degreesN

NAD 27 UTM zone 10



Butt Cr. 7/23/01						
Dist from Total	Total	Bankfull	2xBankfull	Notes		
left stake	depth	Elevation	Elevation	Elevation		
1	0.86	99.14	89.82	93.03	TBM/LB	
6	1.29	98.71	89.82	93.03		
12	5.04	94.96	89.82	93.03		
17.2	6.1	93.9	89.82	93.03		
18.4	7.54	92.4	89.82	93.03		
24.7	7.63	92.37	89.82	93.03		
27.4	6.67	93.33	89.82	93.03		
40.9	6.17	93.83	89.82	93.03		
52.8	8.2	91.8	89.82	93.03		
62.5	6.76	93.24	89.82	93.03		
69.8	9.23	90.77	89.82	93.03		
70.1	11.06	88.94	89.82	93.03		
75.5	11.83	88.17	89.82	93.03		
75.7	11.62	88.38	89.82	93.03		
79.7	9.27	90.73	89.82	93.03	TOBL	
80.9	10.18	89.82	89.82	93.03	BFL	
82	11.97	88.03	89.82	93.03	LEW	
85.2	13.39	86.61	89.82	93.03	T	
92.2	12.34	87.66	89.82	93.03		
98	12.81	87.19	89.82	93.03		
105.4	12.3	87.7	89.82	93.03		
117.5	11.78	88.22	89.82	93.03		
129	10.18	89.82	89.82	93.03	BFR	
138.6	8.98	91.02	89.82	93.03		
171.2	7.37	92.63	89.82	93.03		
182.5	7.99	92.01	89.82	93.03		
191	8.66	91.34	89.82	93.03		
194.3	8.68	91.32	89.82	93.03		
196.3	10.11	89.89	89.82	93.03		
199.8	8.46	91.54	89.82	93.03	TBM-RB	



Butt Creek 7/21/03						
Dist from Total	Total	Bankfull	2xBankfull	Notes		
left stake	Depth	depth	elevation	ull	t	bmrl
0	0.8		99.4	89.86	93.11	
1	1.55		98.45	89.86	93.11	
7	4.3		95.7	89.86	93.11	
13	6.18		93.82	89.86	93.11	
18.2	7.4		92.6	89.86	93.11	
24	7.19		92.81	89.86	93.11	
28.4	6.54		93.46	89.86	93.11	
41.9	5.93		94.07	89.86	93.11	
53.8	6.97		93.03	89.86	93.11	
63.5	7.43		92.57	89.86	93.11	
71	11.5		88.5	89.86	93.11	vs
7	9.21		90.79	89.86	93.11	
79.9	9.17		90.83	89.86	93.11	tbl
80.5	10.14	0	89.86	89.86	93.11	bfl
80.5	11.61	1.47	89.39	89.86	93.11	we
81.5	12.93	2.79	87.07	89.86	93.11	
88	13.39	3.25	86.61	89.86	93.11	t
89	12.4	2.26	87.6	89.86	93.11	
95.7	12.78	2.64	87.22	89.86	93.11	
104.5	12.03	1.8	87.97	89.86	93.11	
111.5	12	1.86	88	89.86	93.11	
116.5	11.79	1.65	89.21	89.86	93.11	we
125.3	10.14	0	89.86	89.86	93.11	bfr
128	9.62		90.38	89.86	93.11	
139	8.53		91.47	89.86	93.11	
165.4	7.22		92.78	89.86	93.11	
175	7.32		92.68	89.86	93.11	
184.5	8.32		91.68	89.86	93.11	
190.6	8.68		91.32	89.86	93.11	
193	9.55		90.45	89.86	93.11	
195.7	9.9		90.1	89.86	93.11	
198	8.11		91.89	89.86	93.11	endr

TOPipe=Top of pipe/bench mark

LEV=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TPoP=Top of pool

S-MAX=Max depth sediment lens

LB=Left bank

RB=Right bank

TOB=Top of bank

BF=Bankfull

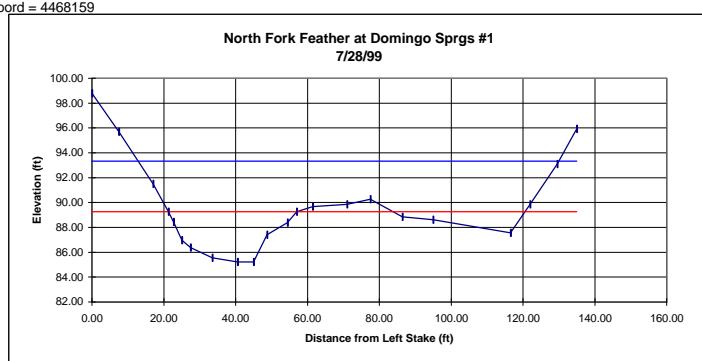
T=Thalweg

Three Year SUMMARY						
Mean	Max	Width:	Flood-	ntrench	Cross-	Bankfull
Year	sector	Width	Depth	Depth	prone	Bankfull
1999	3	41.6	1.69	2.76	24.6	90.99
2001	3	47.10	1.93	3.21	24.40	104.40
2003	3	44.80	1.98	3.25	22.64	213.70
					4.77	

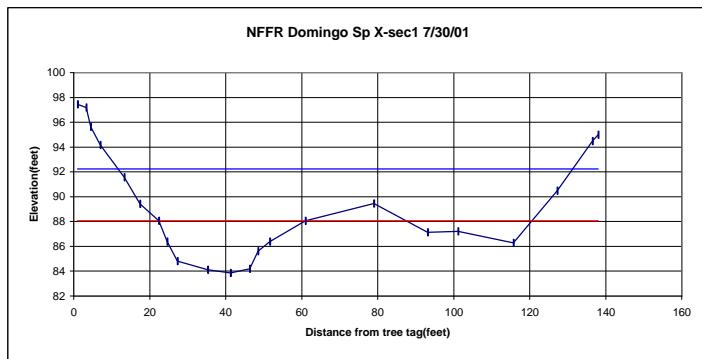
Dist. From Total	Total	Bankfull	2xBankfull	Notes
left stake	Depth	depth	elevation	ull
0	0.8		99.4	89.86
1	1.55		98.45	89.86
7	4.3		95.7	89.86
13	6.18		93.82	89.86
18.2	7.4		92.6	89.86
24	7.19		92.81	89.86
28.4	6.54		93.46	89.86
41.9	5.93		94.07	89.86
53.8	6.97		93.03	89.86
63.5	7.43		92.57	89.86
71	11.5		88.5	89.86
7	9.21		90.79	89.86
79.9	9.17		90.83	89.86
80.5	10.14	0	89.86	89.86
80.5	11.61	1.47	89.39	89.86
81.5	12.93	2.79	87.07	89.86
88	13.39	3.25	86.61	89.86
89	12.4	2.26	87.6	89.86
95.7	12.78	2.64	87.22	89.86
104.5	12.03	1.8	87.97	89.86
111.5	12	1.86	88	89.86
116.5	11.79	1.65	89.21	89.86
125.3	10.14	0	89.86	89.86
128	9.62		90.38	89.86
139	8.53		91.47	89.86
165.4	7.22		92.78	89.86
175	7.32		92.68	89.86
184.5	8.32		91.68	89.86
190.6	8.68		91.32	89.86
193	9.55		90.45	89.86
195.7	9.9		90.1	89.86
198	8.11		91.89	89.86

UTM X-COORD = 639652  
UTM Y-coord = 4468159

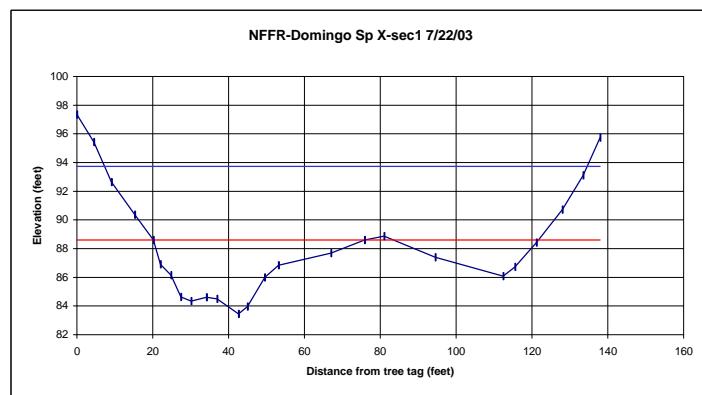
### North Fork Feather River ABV Lake Almanor Xsec 1



Blue Line=2x Bankfull Elev    Red Line=Mean Bankfull Elev    Dark Blue Line w/Markers=Basic Cross Section



NFFR Domingo		7/30/01		
Dist. From left stake	Total depth	Total Elevation	Bankfull Elevation	2xBankfull Notes
1	2.55	97.45	88.05	92.24 TBM-LB
3.3	2.81	97.19	88.05	92.24
4.5	4.36	95.64	88.05	92.24
7	5.84	94.16	88.05	92.24
13.3	8.44	91.56	88.05	92.24
17.4	10.58	89.42	88.05	92.24
22.4	11.95	88.05	88.05	92.24 BFL
24.6	13.61	86.39	88.05	92.24 LEW
27.3	15.2	84.8	88.05	92.24
35.3	15.89	84.11	88.05	92.24
41.3	16.14	83.86	88.05	92.24 T
46.3	15.82	84.18	88.05	92.24
48.5	14.4	85.6	88.05	92.24
51.6	13.62	86.38	88.05	92.24 REW
61	11.95	88.05	88.05	92.24 BFR
79	10.55	89.45	88.05	92.24
93.1	12.87	87.13	88.05	92.24
101.1	12.79	87.21	88.05	92.24
115.7	13.73	86.27	88.05	92.24
127.2	9.51	90.49	88.05	92.24
136.5	5.52	94.48	88.05	92.24
138	5.01	94.99	88.05	92.24



7/22/03 nffr above almanor crosection-1					
Dist from left stake	Total Depth	Bankfull depth	Total elevation	Bankfull elevation	2x bankfull elevation
0	2.66		97.34	88.6	93.74 tbml
4.5	4.58		95.42	88.6	93.74
9.1	7.36		92.64	88.6	93.74
15.3	9.64		90.36	88.6	93.74
20.2	11.4	0	88.6	88.6	93.74 bfl
22	13.09	1.69	86.91	88.6	93.74 wel
24.8	13.86	2.46	86.14	88.6	93.74
27.4	15.36	3.96	84.64	88.6	93.74
30.1	15.65	4.25	84.35	88.6	93.74
34.2	15.39	3.99	84.61	88.6	93.74
37	15.51	4.11	84.49	88.6	93.74
42.6	16.54	5.14	83.46	88.6	93.74 t
45	16.03	4.63	83.97	88.6	93.74
49.5	14.01	2.61	85.99	88.6	93.74
53.2	13.17	1.77	86.83	88.6	93.74 wer
67	12.31	0.91	87.69	88.6	93.74
75.9	11.4	0	88.6	88.6	93.74 bfr
81	11.14		88.86	88.6	93.74
94.5	12.61		87.39	88.6	93.74
112.4	13.91		86.09	88.6	93.74
115.5	13.28		86.72	88.6	93.74
121.2	11.58		88.42	88.6	93.74
128	9.28		90.72	88.6	93.74
133.5	6.9		93.1	88.6	93.74
138	4.27		95.73	88.6	93.74 endr

TOPipe=Top of pipe/bench mark

LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TOPool=Top of pool

S-MAX=Max depth sediment lens

LB=Left bank

RB=Right bank

TOB=Top of bank

BF=Bankfull

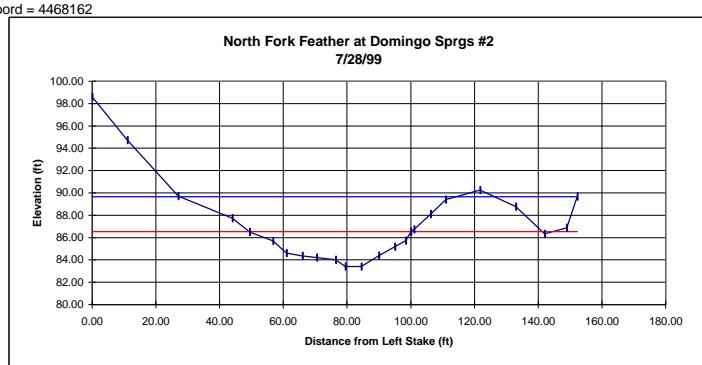
T=Thalweg

all measurements in feet

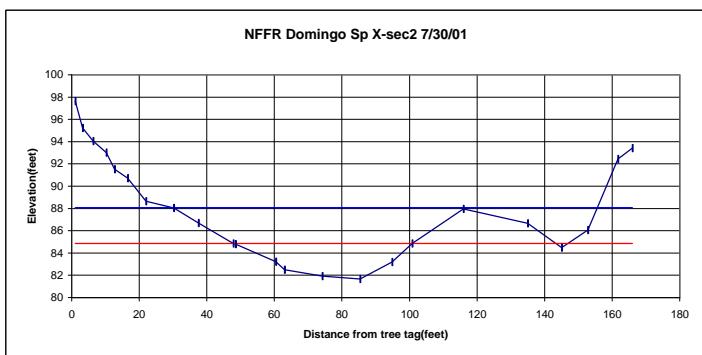
Three Year SUMMARY		Mean	Max	Width:	Flood-	Entrench-
Year	Cross- section	Bankfull Width	Bankfull Depth	Bankfull Depth	prone width	ment Ratio
1999	1	35.70	2.57	4.06	13.87	117.09
2001	1	38.60	2.62	4.19	14.73	116.80
2003	1	55.70	2.96	5.14	18.82	126.30

UTM X-coord = 639621  
UTM Y-coord = 4468162

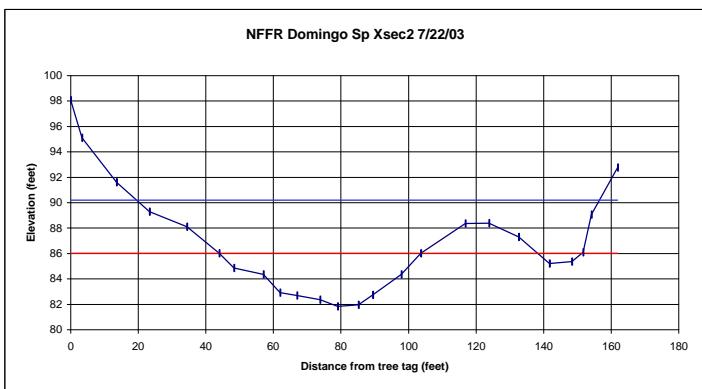
### North Fork Feather River abv Lake Almanor X-sec 2



Blue Line=2x Bankfull Elev    Red Line=Mean Bankfull Elev    Dark Blue Line w/Markers=Basic Cross Section



NFFR Domingo		7/30/01		
Dist. From left stake	Total depth	Total Elevation	Bankfull Elevation	2x Bankfull Notes
1	2.36	97.64	84.87	88.08 TBM-LB
3.2	4.78	95.22	84.87	88.08
6.3	5.95	94.05	84.87	88.08
10.2	6.97	93.03	84.87	88.08
12.7	8.49	91.51	84.87	88.08
16.6	9.28	90.72	84.87	88.08
22	11.36	88.64	84.87	88.08
30.2	11.94	88.06	84.87	88.08
37.5	13.31	86.69	84.87	88.08
47.8	15.13	84.87	84.87	88.08 BFL
48.5	15.2	84.8	84.87	88.08
60.4	16.78	83.22	84.87	88.08 LEW
63	17.51	82.49	84.87	88.08
74.2	18.07	81.93	84.87	88.08
85.4	18.34	81.66	84.87	88.08 T
94.8	16.8	83.2	84.87	88.08 REW
100.8	15.13	84.87	84.87	88.08 BFR
116	12.03	87.97	84.87	88.08
135	13.33	86.67	84.87	88.08
145	15.52	84.48	84.87	88.08
152.8	13.94	86.06	84.87	88.08
161.7	7.55	92.45	84.87	88.08
166	6.58	93.42	84.87	88.08 End



Dist from left stake	Total Depth	Bankfull depth	Total elevation	Bankfull elevation	2x bankfull elevation		Notes
					Notes	Bankfull elevation	
0	1.93		98.07	86.01	90.19	ttml	
3.3	4.88		95.12	86.01	90.19		
13.5	8.4		91.6	86.01	90.19		
23.3	10.71		89.29	86.01	90.19		
34.4	11.9		88.1	86.01	90.19		
44	13.99	0	86.01	86.01	90.19 bfl		
48.3	15.15	1.16	84.85	86.01	90.19		
57	15.65	1.66	84.35	86.01	90.19 wel		
62	17.09	3.1	82.91	86.01	90.19		
67	17.3	3.31	82.7	86.01	90.19		
73.8	17.62	3.63	82.38	86.01	90.19		
79	18.17	4.18	81.83	86.01	90.19 t		
85.2	18.04	4.05	81.96	86.01	90.19		
89.4	17.25	3.26	82.75	86.01	90.19		
97.9	15.64	1.65	84.36	86.01	90.19 wer		
103.6	13.99	0	86.01	86.01	90.19 bfr		
116.8	11.64		88.36	86.01	90.19		
123.8	11.61		88.39	86.01	90.19		
132.6	12.7		87.3	86.01	90.19		
141.7	14.78		85.22	86.01	90.19		
148.4	14.63		85.37	86.01	90.19		
151.7	13.91		86.09	86.01	90.19		
154.1	10.92		89.08	86.01	90.19		
161.9	7.24		92.76	86.01	90.19 endr		

TOPipe=Top of pipe/bench mark

LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TOPool=Top of pool

S-MAX=Max. depth sediment lense

LB=Left bank

RB=Right bank

TOB=Top of bank

BF=Bankfull

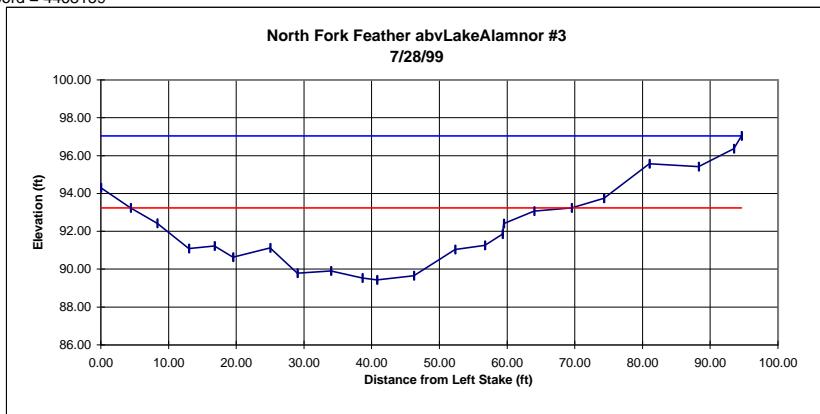
T=Thalweg

all measurements in feet

Year	Cross section	Width	Bankfull Depth	Bankfull Depth	Width:	Flood prone	Entrenchment	Notes	
								Ratio	Ratio
1999	2	50.60	2.01	3.11	25.20	124.83	2.47		
2001	2	53.00	1.70	3.21	31.17	122.40	2.30		
2003	2	59.60	2.60	4.18	22.92	134.60	2.26		

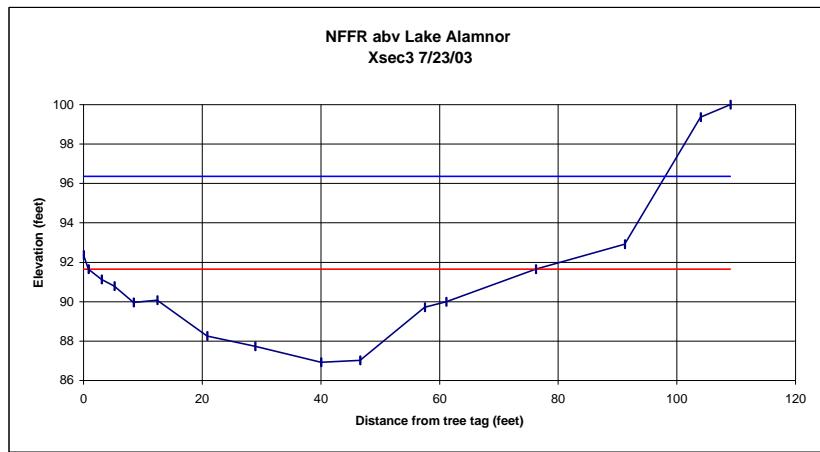
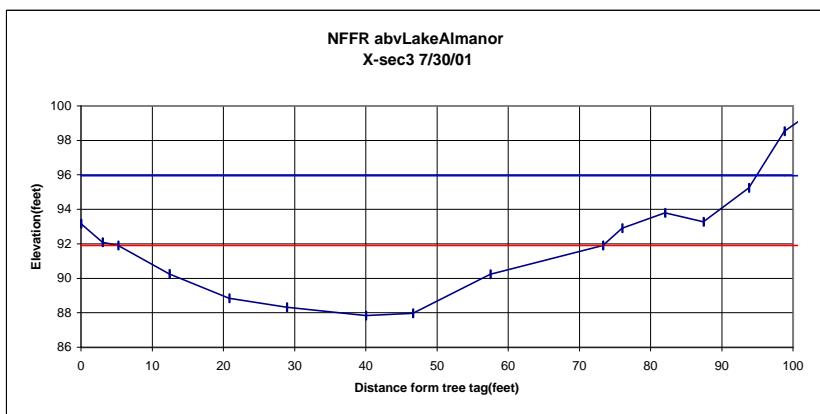
UTM X-coord = 639513  
UTM Y-coord = 4468159

### North Fork Feather River abv Lake Almanor X-sec 3



Blue Line=2x Bankfull Elev    Red Line=Mean Bankfull Elev    Dark Blue Line w/Markers=Basic Cross Section

Dist. From Left Stake	Total Elevation	Bankfull Elevation	2xBankfull Elevation
0.00	94.30	93.24	97.04
4.40	93.24	93.24	97.04
8.30	92.42	93.24	97.04
13.00	91.09	93.24	97.04
16.80	91.22	93.24	97.04
19.50	90.63	93.24	97.04
25.00	91.12	93.24	97.04
29.00	89.78	93.24	97.04
34.00	89.90	93.24	97.04
38.60	89.54	93.24	97.04
40.80	89.44	93.24	97.04
46.20	89.66	93.24	97.04
52.30	91.04	93.24	97.04
56.70	91.26	93.24	97.04
59.30	91.85	93.24	97.04
59.50	92.40	93.24	97.04
64.00	93.07	93.24	97.04
69.50	93.24	93.24	97.04
74.30	93.75	93.24	97.04
81.00	95.57	93.24	97.04
88.30	95.41	93.24	97.04
93.50	96.36	93.24	97.04
94.60	97.04	93.24	97.04



TOPipe=Top of pipe/bench mark  
LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TOPool=Top of pool

S-MAX=Max. depth sediment lense

LB=Left bank

RB=Right bank

TOB=Top of bank

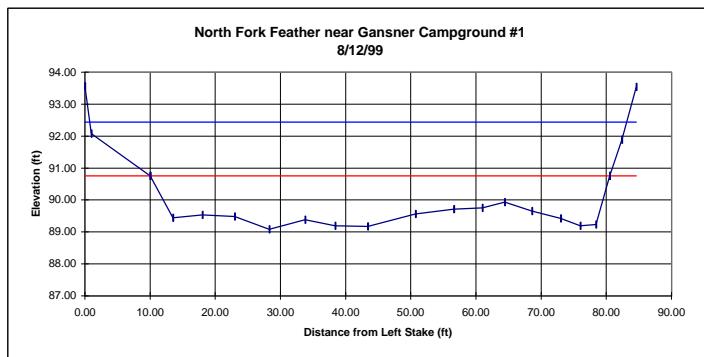
BF=Bankfull

T=Thalweg

all measurements in feet

Year	Three Year SUMMARY		Mean	Max	Width:	Flood-	Entrench-
	Cross-section	Bankfull Width	Bankfull Depth	Bankfull Depth	Depth Ratio	prone width	ment Ratio
1999	3	65.10	2.28	3.80	28.57	94.60	1.45
2001	3	68.10	2.56	4.06	26.60	105.00	1.54
2003	3	75.40	2.26	4.72	33.36	112.30	1.49

All measurement in feet

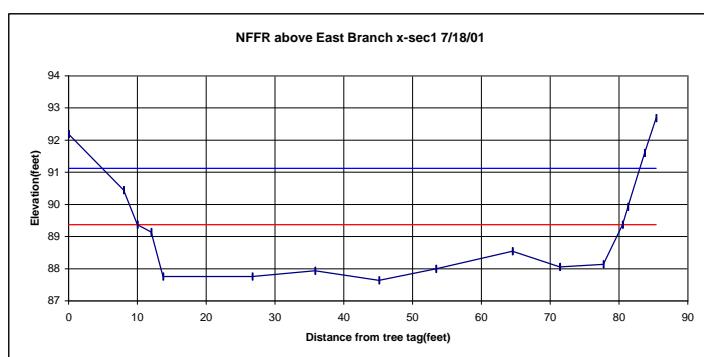


Blue Line=2x Bankfull Elev

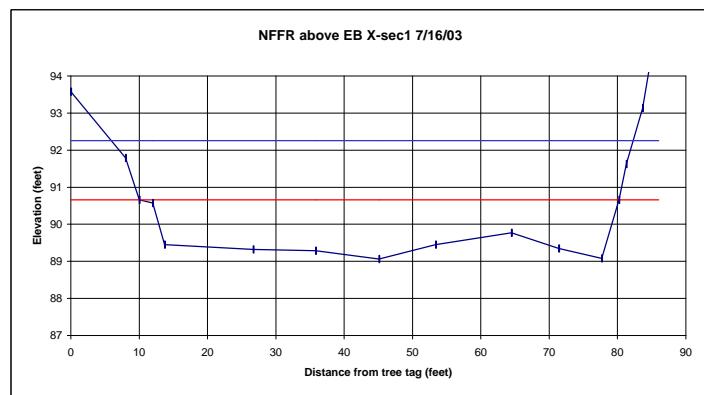
Red Line=Mean Bankfull Elev

Dark Blue Line w/Markers=Basic Cross Section

Dist. From Left Stake	Total Elevation	Bankfull Elevation	2x Bankfull Elevation
0.00	93.56	90.76	92.44
1.00	92.08	90.76	92.44
10.00	90.76	90.76	92.44
23.00	89.48	90.76	92.44
28.30	89.08	90.76	92.44
33.80	89.38	90.76	92.44
38.40	89.19	90.76	92.44
43.40	89.17	90.76	92.44
50.70	89.56	90.76	92.44
56.60	89.71	90.76	92.44
61.00	89.75	90.76	92.44
64.40	89.93	90.76	92.44
68.60	89.65	90.76	92.44
73.00	89.42	90.76	92.44
76.00	89.19	90.76	92.44
78.40	89.23	90.76	92.44
80.50	90.76	90.76	92.44
80.50	90.76	90.76	92.44
82.40	91.89	90.76	92.44
84.60	93.54	90.76	92.44



Dist. From left stake	Total depth	NFFR above EBFFR	7/18/01
		Total Bankfull Elevation	Bankfull Elevation
0	7.81	92.19	89.37 91.12 TBM-LB
8	9.55	90.45	89.37 91.12
10	10.63	89.37	89.37 91.12 BFL/LEW
12	10.86	89.14	89.37 91.12
13.7	12.24	87.76	89.37 91.12
26.7	12.24	87.76	89.37 91.12
35.8	12.06	87.94	89.37 91.12
45.1	12.36	87.64	89.37 91.12 T
53.4	12	88	89.37 91.12
64.5	11.46	88.54	89.37 91.12
71.4	11.94	88.06	89.37 91.12
77.7	11.86	88.14	89.37 91.12
80.5	10.63	89.37	89.37 91.12 BFR/REW
81.3	10.07	89.93	89.37 91.12
83.7	8.4	91.6	89.37 91.12
85.4	7.31	92.69	89.37 91.12 TBM-RB



Dist from left stake	Total Depth	Bankfull depth	Total elevation	Bankfull elevation	Bankfull elevation	2x Bankfull Notes
0	6.42		93.58	90.66	92.26	tbl
8	8.21		91.79	90.66	92.26	tbl, wel
10	9.34	0	90.66	90.66	92.26	
12	9.43	0.09	90.57	90.66	92.26	
13.7	10.55	1.21	89.45	90.66	92.26	
26.7	10.68	1.34	89.32	90.66	92.26	
35.8	10.71	1.37	89.29	90.66	92.26	
45.1	10.94	1.6	89.06	90.66	92.26	t
53.4	10.55	1.21	89.45	90.66	92.26	
64.5	10.23	0.89	89.77	90.66	92.26	
71.4	10.65	1.31	89.35	90.66	92.26	
77.7	10.92	1.58	89.08	90.66	92.26	
80.2	9.34	0	90.66	90.66	92.26	bfr,wer
81.3	8.37		91.63	90.66	92.26	
83.7	6.86		93.14	90.66	92.26	
86	4.29		95.71	90.66	92.26	tobr, endr

TOPipe=Top of pipe/bench mark

LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TOPool=Top of pool

S-MAX=Max. depth sediment lense

LB=Left bank

RB=Right bank

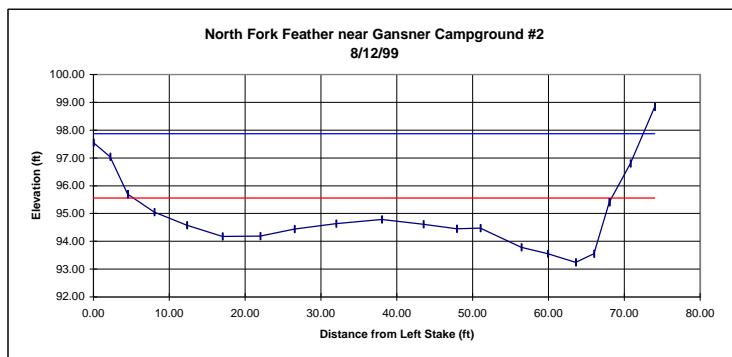
TOB=Top of bank

BF=Bankfull

T=Thalweg

Three Year SUMMARY		Mean	Max	Width:	Flood-prone	Entrench-
Year	Cross-section	Bankfull Width	Bankfull Depth	Bankfull Depth	width	ment
1999	1	70.50	1.16	1.68	60.87	82.38
2001	1	70.50	1.13	1.73	62.38	82.97
2003	1	70.20	1.06	1.60	66.23	93.50
						Ratio

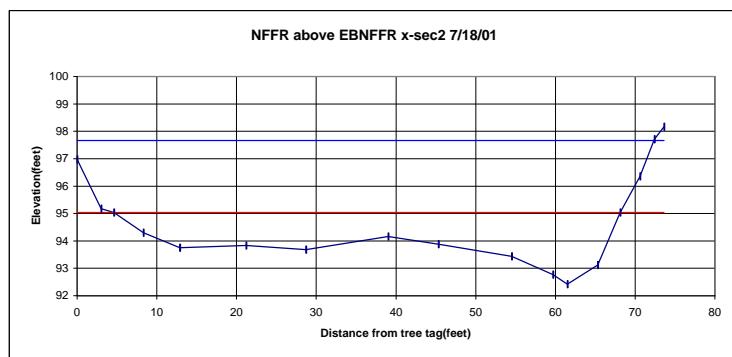
all measurements in feet



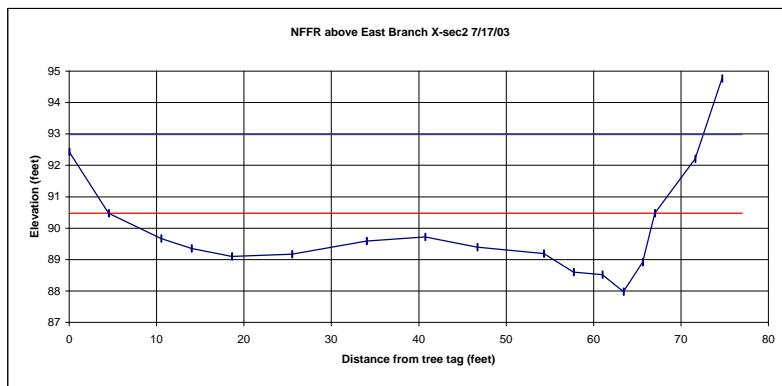
Blue Line=2x Bankfull Elev

Red Line=Mean Bankfull Elev

Dark Blue Line w/Markers=Basic Cross Section



Dist. From Left Stake	Total Depth	Bankfull Depth	2xBankfull Depth	Elevation
0.00	97.55	95.555	97.87	
2.20	97.04	95.555	97.87	
4.50	95.70	95.555	97.87	
4.50	95.70	95.555	97.87	
8.00	95.05	95.555	97.87	
12.30	94.58	95.555	97.87	
17.00	94.18	95.555	97.87	
22.00	94.19	95.555	97.87	
26.50	94.44	95.555	97.87	
32.00	94.64	95.555	97.87	
38.00	94.78	95.555	97.87	
43.50	94.61	95.555	97.87	
47.90	94.45	95.555	97.87	
51.00	94.47	95.555	97.87	
56.40	93.78	95.555	97.87	
59.90	93.55	95.555	97.87	
63.60	93.24	95.555	97.87	
66.00	93.55	95.555	97.87	
68.00	95.41	95.56	97.87	
68.00	95.41	95.555	97.87	
70.80	96.80	95.555	97.87	
74.00	98.84	95.555	97.87	



nffr at gansner cross-section-2  
7/17/03

Dist from left stake	Total Depth	Bankfull depth	Total elevation	Bankfull elevation	2x Bankfull elevation	Notes
0	7.57		92.43	90.48	92.98	tbal
4.5	9.52	0	90.48	90.48	92.98	bfl,wel
10.5	10.33	0.81	89.67	90.48	92.98	
14	10.65	1.13	89.35	90.48	92.98	
18.6	10.9	1.38	89.1	90.48	92.98	
25.5	10.83	1.31	89.17	90.48	92.98	
34	10.41	0.89	89.59	90.48	92.98	
40.7	10.28	0.76	89.72	90.48	92.98	
46.7	10.61	1.09	89.39	90.48	92.98	
54.3	10.81	1.29	89.19	90.48	92.98	
57.7	11.4	1.88	88.6	90.48	92.98	
61	11.48	1.96	88.52	90.48	92.98	
63.4	12.02	2.5	87.98	90.48	92.98	t
65.6	11.08	1.56	88.92	90.48	92.98	
67	9.52	0	90.48	90.48	92.98	bfr,wer
71.6	7.79		92.21	90.48	92.98	
74.7	5.23		94.77	90.48	92.98	
77	3.19		96.81	90.48	92.98	tobr,endr

TOPipe=Top of pipe/bench mark

LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TOPool=Top of pool

S-MAX=Max. depth sediment lens

LB=Left bank

RB=Right bank

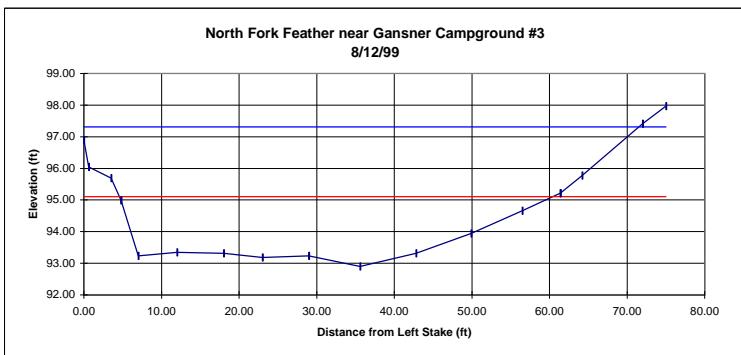
TOB=Top of bank

BF=Bankfull

T=Thalweg

Three Year SUMMARY		Mean	Max	Width:	Flood-prone	Entrench-
Year	Cross-section	Bankfull Width	Bankfull Depth	Bankfull Depth	width	ment
1999	2	63.50	1.30	2.46	48.68	72.48
2001	2	63.50	1.36	2.62	46.69	76.40
2003	2	62.50	1.27	2.50	49.06	76.50

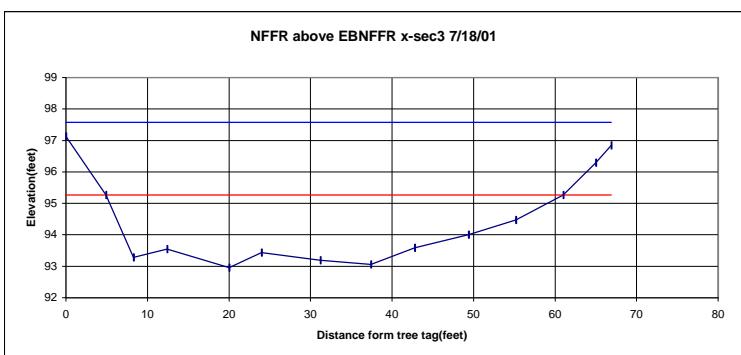
all measurements in feet



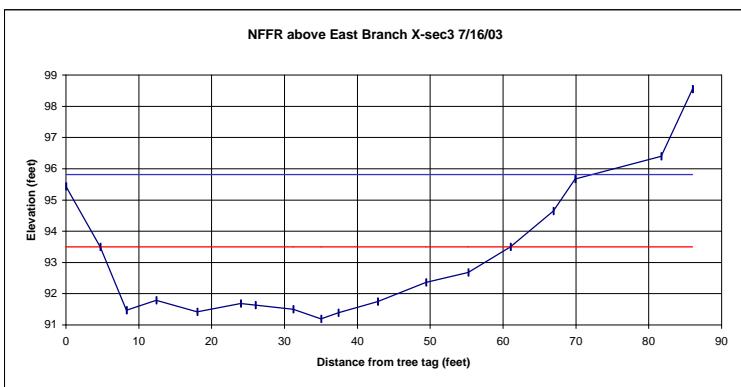
Blue Line=2x Bankfull Elev

Red Line=Mean Bankfull Elev

Dark Blue Line w/Markers=Basic Cross Section



Dist. From Left Stake	Total Depth	Bankfull Depth	2xBankfull Elevation
0.00	96.90	95.105	97.31
0.60	96.05	95.105	97.31
3.50	95.69	95.105	97.31
4.80	94.99	95.105	97.31
4.80	94.99	95.105	97.31
7.00	93.23	95.105	97.31
12.00	93.35	95.105	97.31
18.00	93.31	95.105	97.31
23.00	93.18	95.105	97.31
29.00	93.23	95.105	97.31
35.60	92.90	95.105	97.31
42.80	93.32	95.105	97.31
49.90	93.94	95.105	97.31
56.50	94.66	95.105	97.31
61.40	95.22	95.105	97.31
61.40	95.22	95.105	97.31
64.20	95.77	95.105	97.31
72.00	97.41	95.105	97.31
75.00	97.97	95.11	97.31



Dist. From Left stake	Total depth	Total Elevation	Bankfull Elevation	2xBankfull Elevation	Notes
0	2.87	97.13	95.27	97.58	TBM-LB
4.9	4.73	95.27	95.27	97.58	BFL/LEW
8.3	6.72	93.28	95.27	97.58	
12.4	6.45	93.55	95.27	97.58	
20	7.04	92.96	95.27	97.58	T
24	6.57	93.43	95.27	97.58	
31.2	6.81	93.19	95.27	97.58	
37.4	6.94	93.06	95.27	97.58	
42.8	6.41	93.59	95.27	97.58	
49.4	6	94	95.27	97.58	
55.2	5.53	94.47	95.27	97.58	
61	4.73	95.27	95.27	97.58	BFR/REW
65	3.71	96.29	95.27	97.58	
66.9	3.16	96.84	95.27	97.58	TBM-RB

Dist from left stake	Total Depth	Bankfull depth	Total elevation	Bankfull elevation	2x Bankfull elevation	Notes
0	4.56	0	95.44	93.5	95.81	tbel
4.7	6.5	2.03	91.47	93.5	95.81	bfl,wel
8.3	8.53	2.03	91.47	93.5	95.81	
12.4	8.21	1.71	91.79	93.5	95.81	
18	8.58	2.08	91.42	93.5	95.81	
24	8.31	1.81	91.69	93.5	95.81	
26	8.36	1.86	91.64	93.5	95.81	
31.2	8.5	2	91.5	93.5	95.81	
35	8.81	2.31	91.19	93.5	95.81	t
37.4	8.61	2.11	91.39	93.5	95.81	
42.8	8.25	1.75	91.75	93.5	95.81	
49.4	7.64	1.14	92.36	93.5	95.81	
55.2	7.32	0.82	92.68	93.5	95.81	
61	6.5	0	93.5	93.5	95.81	bfr,wer
66.9	5.35		94.65	93.5	95.81	
69.9	4.33		95.67	93.5	95.81	
81.7	3.6		96.4	93.5	95.81	
86	1.45		98.55	93.5	95.81	

TOPipe=Top of pipe/bench mark

LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TOPool=Top of pool

S-MAX=Max. depth sediment lens

LB=Left bank

RB=Right bank

TOB=Top of bank

BF=Bankfull

T=Thalweg

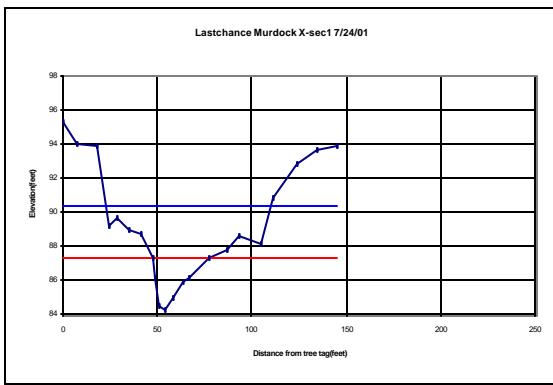
Year	Cross-section	Width	Bankfull Depth	Mean Depth	Max Depth	Width Ratio	Flood-prone Depth	Entrenchment Ratio
1999	3	56.60	1.21	2.09	46.71	71.52	1.26	
2001	3	56.10	1.60	2.31	35.06	81.05	1.44	
2003	3	56.30	1.64	2.31	34.43	83.00	1.47	

UTM X-coord = 708793  
UTM Y-coord = 4438877

### Last Chance Cr below Murdock X-ing x-sec 1

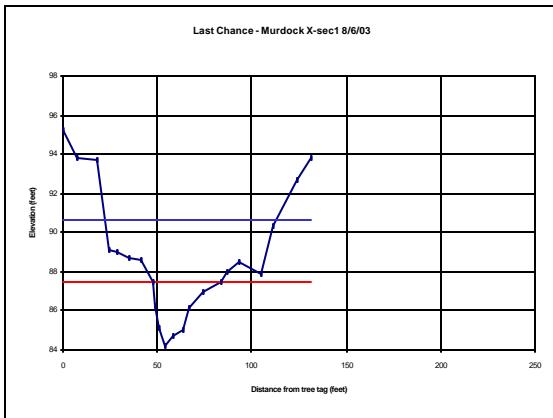


Blue Line=2x Bankfull Elev    Red Line=Mean Bankfull Elev    Dark Blue Line w/Markers=Basic Cross Section



Dist. From Left Stake	Total depth	Bankfull elevation	2xBankfull elevation
0.00	96.45	88.52	91.23
18.90	95.60	88.52	91.23
21.30	90.60	88.52	91.23
45.00	89.43	88.52	91.23
47.00	88.52	88.52	91.23
47.50	87.70	88.52	91.23
48.00	86.45	88.52	91.23
53.00	85.81	88.52	91.23
59.00	86.33	88.52	91.23
66.00	87.57	88.52	91.23
72.50	88.52	88.52	91.23
102.30	89.78	88.52	91.23
107.50	90.82	88.52	91.23
111.00	92.78	88.52	91.23
140.30	95.52	88.52	91.23
224.00	95.25	88.52	91.23

Dist. From left stake	Total depth	Total elevation	Bankfull elevation	2xBankfull elevation	Notes
0	4.67	95.33	87.32	90.39	TBM-LB
7	5.98	94.02	87.32	90.39	
18	6.07	93.93	87.32	90.39	TOBL
24	10.77	89.23	87.32	90.39	
28.8	10.37	89.63	87.32	90.39	
34.5	11.11	88.89	87.32	90.39	
41	11.32	88.68	87.32	90.39	
47.6	12.68	87.32	87.32	90.39	BFL
48.9	13.89	86.11	87.32	90.39	LEW
50.8	15.49	84.51	87.32	90.39	
54.4	15.75	84.25	87.32	90.39	T
58.4	15.01	84.99	87.32	90.39	
64	14.12	85.88	87.32	90.39	
66.6	13.86	86.14	87.32	90.39	REW
77.7	12.68	87.32	87.32	90.39	BFR
86.4	12.25	87.75	87.32	90.39	
92.7	11.42	88.58	87.32	90.39	
104.5	11.84	88.16	87.32	90.39	
110.7	9.16	90.84	87.32	90.39	
123.7	7.22	92.78	87.32	90.39	
134.1	6.34	93.66	87.32	90.39	
145.6	6.15	93.85	87.32	90.39	TBM-RB



Dist. from left stake	Total depth	Bankfull elevation	2xBankfull elevation	Notes
0	4.76	95.24	87.44	90.67 tbml
7	6.16	93.84	87.44	90.67
18	6.26	93.74	87.44	90.67 tobl
24	10.9	89.1	87.44	90.67
28.8	10.96	89.04	87.44	90.67
34.5	11.29	88.71	87.44	90.67
41	11.44	88.56	87.44	90.67
47.6	12.56	0	87.44	90.67 bfl
49	13.79	1.23	86.21	87.44
50.4	14.85	2.29	85.15	87.44
54	15.79	3.23	84.21	87.44
58.4	15.26	2.7	84.74	87.44
64	14.93	2.37	85.07	87.44
66.8	13.87	1.31	86.13	87.44
73.8	13.02	0.46	86.98	87.44
84	12.56	0	87.44	90.67 bfr
86.4	12.02		87.98	87.44
92.7	11.49		88.51	87.44
104.5	12.13		87.87	87.44
110.7	9.63		90.37	87.44
123.7	7.35		92.65	87.44
131	6.24		93.76	87.44

TOPipe=Top of pipe/bench mark  
LEW=Left edge of water  
REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TOPool=Top of pool

S-MAX=Max depth sediment lens

LB=Left bank

RB=right bank

TOB=Top of bank

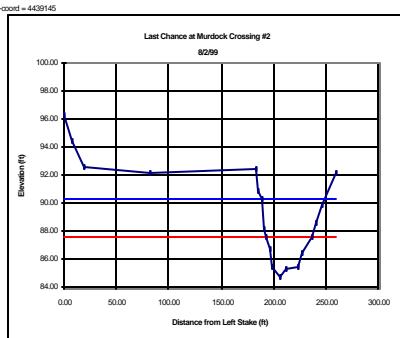
BF=Bankfull

T=Thalweg

Year	Cross-section	Width	Bankfull Depth	Bankfull Depth	Depth ratio	Prone width	Flood-prone width	Entrenchment
1999	1	25.50	1.75	2.71	14.59	87.23	3.42	
2001	1	30.10	1.72	3.07	17.50	87.10	2.89	
2003	1	36.40	1.70	3.23	21.42	89.80	2.47	

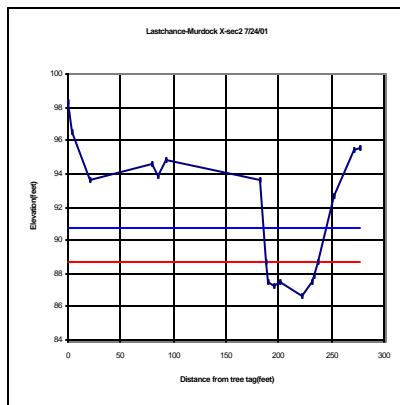
UTM X-coord = 708990  
UTM Y-coord = 4429145

### Last Chance Cr below Murdock X-ing x-sec 2

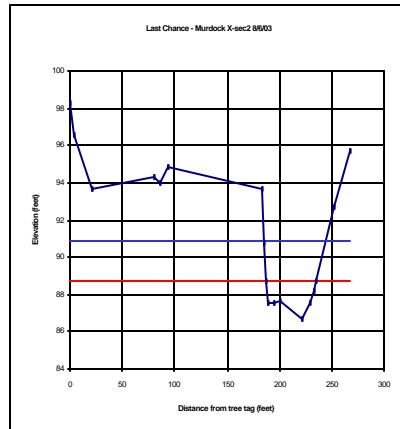


Dist. From Left Stake	Total Depth	Bankfull Depth	2x Bankfull Depth	Elevation	Elevation
0.00	96.25	87.52	90.34		
7.70	94.41	87.52	90.34		
18.30	92.55	87.52	90.34		
82.00	92.20	87.52	90.34		
184.00	92.40	87.52	90.34		
186.00	90.80	87.52	90.34		
188.50	90.30	87.52	90.34		
190.50	88.15	87.52	90.34		
193.00	87.52	87.52	90.34		
197.00	86.70	87.52	90.34		
199.40	85.49	87.52	90.34		
205.50	84.70	87.52	90.34		
212.70	85.24	87.52	90.34		
222.90	85.43	87.52	90.34		
227.20	86.38	87.52	90.34		
236.50	87.52	87.52	90.34		
241.30	88.61	87.52	90.34		
247.30	89.86	87.52	90.34		
259.40	92.08	87.52	90.34		

Blue Line=2x Bankfull Elev    Red Line=Mean Bankfull Elev    Dark Blue Line w/Markers=Basic Cross Section



LastChance-Murdock 7/24/01					
Dist. From Left Stake	Total Depth	Total Bankfull Depth	2x Bankfull Depth	Elevation	Elevation
0	1.74	98.26	88.69	90.74	TBM/LBL
3.2	3.52	96.48	88.69	90.74	
21.7	6.34	93.66	88.69	90.74	
80.6	5.43	94.57	88.69	90.74	
86.2	6.13	93.87	88.69	90.74	
93	5.23	94.77	88.69	90.74	
182.5	6.4	93.6	88.69	90.74	TOBL
188	11.31	88.69	88.69	90.74	BFL
188.6	12.52	87.48	88.69	90.74	LEW
195.7	12.81	87.19	88.69	90.74	
200.7	12.57	87.43	88.69	90.74	
222	13.36	86.64	88.69	90.74	T
231.6	12.95	87.45	88.69	90.74	REW
233.7	12.12	87.88	88.69	90.74	
236.4	11.31	88.69	88.69	90.74	BFR
252.6	7.32	92.68	88.69	90.74	
271.1	4.55	95.45	88.69	90.74	TOBR
276.9	4.42	95.58	88.69	90.74	TBM-RB



8/6/03 last chance crossection-2					
Dist. from Left Stake	Total Depth	Bankfull Depth	2x Bankfull Depth	Elevation	Elevation
0	1.74	98.26	88.77	90.84	tml
3.2	3.44	96.56	88.77	90.84	
21.7	6.33	93.67	88.77	90.84	
80.6	5.64	94.36	88.77	90.84	
86.2	6.05	93.95	88.77	90.84	
93	5.2	94.8	88.77	90.84	
182.5	6.35	93.65	88.77	90.84	
184.5	9.19	90.81	88.77	90.84	
187.7	11.23	0	88.77	88.77	bfl
188.3	12.46	1.23	87.54	88.77	wel
195.7	12.5	1.27	87.5	88.77	
200.7	12.37	1.14	87.63	88.77	
222	13.3	2.07	86.7	88.77	t
229.8	12.45	1.22	87.55	88.77	wer
233.7	11.78	0.55	88.22	88.77	wer
235.9	11.23	0	88.77	88.77	bfr
252.6	7.25	92.75	88.77	90.84	
267.6	4.28	95.72	88.77	90.84	endtobr

TOPipe=Top of pipe/bench mark

LEV=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TOPo=Top of pool

S-MAX=Max. depth sediment lens

LB=Left bank

RB=Right bank

TB=Top of bank

BF=Bankfull

T=Thalweg

all measurements in feet

Three Year SUMMAR <sup>1</sup>					
Year	Cross- sector	Bankfull Width	Bankfull Depth	Depth Ratio	Width Ratio
1999	2	43.50	1.86	2.82	23.35
2001	2	48.40	1.15	2.05	42.08
2003	2	48.20	1.07	2.07	45.11

UTM X-coord = 709054  
UTM Y-coord = 4429348

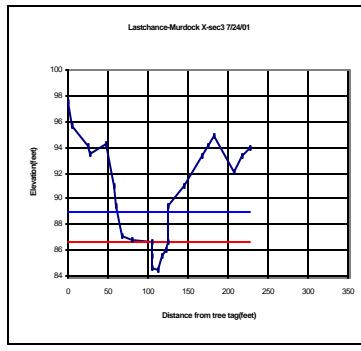
### Last Chance Cr below Murdock X-ing xsec 3



Dist. From Total Bankfull 2xBankfull  
Left Stake Elevation Elevation Elevation

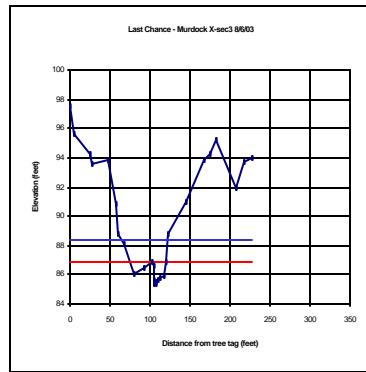
0.00	98.58	87.9	89.47
4.00	97.15	87.9	89.47
9.00	96.09	87.9	89.47
16.00	95.28	87.9	89.47
47.00	95.28	87.9	89.47
51.00	93.15	87.9	89.47
57.50	91.72	87.9	89.47
59.30	89.96	87.9	89.47
66.40	86.66	87.9	89.47
73.00	86.97	87.9	89.47
74.50	87.38	87.9	89.47
82.80	86.33	87.9	89.47
85.40	87.83	87.9	89.47
102.50	87.90	87.9	89.47
105.00	86.78	87.9	89.47
106.01	86.35	87.9	89.47
110.00	86.50	87.9	89.47
115.40	86.72	87.9	89.47
121.60	87.90	87.9	89.47
123.00	89.95	87.9	89.47
158.00	93.84	87.9	89.47
173.00	95.23	87.9	89.47
190.60	95.78	87.9	89.47
204.00	93.03	87.9	89.47
212.50	93.23	87.9	89.47
220.00	94.88	87.9	89.47
254.00	94.73	87.9	89.47
300.00	95.82	87.9	89.47

Blue Line=2x Bankfull Elev    Red Line=Mean Bankfull Elev    Dark Blue Line w/Markers=Basic Cross Section



LastChance-Murdock 7/24/01

Dist. From Total	Total	Bankfull	2xBankfull	Notes
0	2.45	97.55	88.7	88.93 TBM/LB
6	4.41	95.59	88.7	88.93
24.4	5.85	94.15	88.7	88.93
27.5	6.5	93.5	88.7	88.93
48	5.8	94.2	88.7	88.93 TOBL
58.1	9.02	90.96	88.7	88.93
59.9	10.52	89.48	88.7	88.93
66.4	12.8	87.17	88.7	88.93
79	13.18	88.82	88.7	88.93
103.8	13.3	86.7	88.7	88.93 BFL
105	14.46	85.54	88.7	88.93 LEW
106	15.31	84.69	88.7	88.93
112.3	15.53	84.47	88.7	88.93 T
118	14.52	85.48	88.7	88.93 REW
121.5	13.8	86.08	88.7	88.93
124	13.3	86.7	88.7	88.93 BFR
126	10.59	89.41	88.7	88.93 TOBL
144.5	8.95	91.05	88.7	88.93
168	6.75	93.25	88.7	88.93
174	5.9	94.1	88.7	88.93
183.5	5.07	94.93	88.7	88.93
207.3	7.94	92.06	88.7	88.93
218.7	6.68	93.31	88.7	88.93
226.5	6.11	93.89	88.7	88.93 End



8/6/03 last chance crossection-3

Dist from Total	Total	Bankfull	2x	Bankfull	Bankfull	Notes
0	2.4		97.6	86.84	88.35	tmbf
5	4.39		95.61	86.84	88.35	
24.4	5.72		94.28	86.84	88.35	
27.5	6.4		93.6	86.84	88.35	
48	6.18		93.82	86.84	88.35	tobl
57.3	9.2		90.8	86.84	88.35	
59.9	11.22		88.78	86.84	88.35	
66.4	11.83		88.17	86.84	88.35	
79	14.01		85.99	86.84	88.35	
93.3	13.59		86.41	86.84	88.35	
101.9	13.16	0	86.84	86.84	88.35	bfl
103.9	13.34	0.18	86.66	86.84	88.35	
104.6	14.33	1.17	85.67	86.84	88.35	wel
105.3	14.62	1.46	85.38	86.84	88.35	
107	14.67	1.51	85.33	86.84	88.35	t
108.6	14.55	1.39	85.45	86.84	88.35	
109.9	14.38	1.22	85.62	86.84	88.35	
111.7	14.29	1.13	85.71	86.84	88.35	wer
117.1	14.07	0.91	85.93	86.84	88.35	
120.2	13.16	0	86.84	86.84	88.35	bfr
123.1	11.25		88.75	86.84	88.35	
145.5	9.09		90.91	86.84	88.35	
168	6.15		93.85	86.84	88.35	
174	5.7		94.3	86.84	88.35	

TOPipe=Top of pipe/bench mark

LEW=Left edge of water

REW=Right edge of water

REW=Right edge of water

Three Year SUMMARY		Mean	Max	Width:	Flood-	Entren-
Year	Cross-	Bankfu	Bankful	Depth	prone	ment
1999	3	19.10	1.31	1.55	14.55	62.32
2001	3	20.20	1.20	2.23	16.83	65.30
2003	3	18.30	1.00	1.51	18.36	60.20
					3.29	

S-MAX=Max depth sediment lens

Lb=Left bank

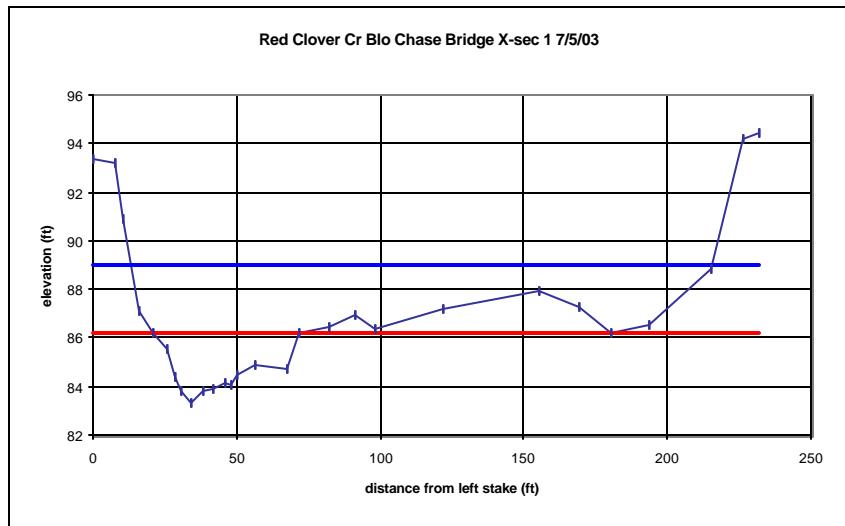
Rb=Right bank

Tb=Top of bank

Bf=Bankfull

T=Thalweg

### Red Clover Cr Below Chase Bridge X-sec 1

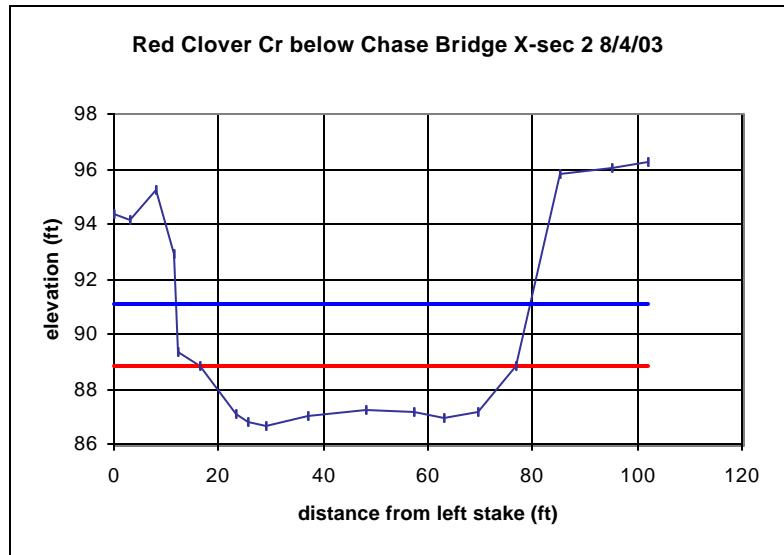


7/5/03 red clover below chase crosection-1					
Dist from left stak	Total depth	Bankfull depth	Total elevation	Bankfull elevation	2x bankfull elevation
0	6.67		93.33	86.17	89.03 tbml
8	6.77		93.23	86.17	89.03 tob1
10.3	9.12		90.88	86.17	89.03
16.2	12.88		87.12	86.17	89.03
20.9	13.83	0	86.17	86.17	89.03 bfl
26	14.43	0.6	85.57	86.17	89.03
28.7	15.58	1.75	84.42	86.17	89.03 wel
30.8	16.18	2.35	83.82	86.17	89.03
34	16.69	2.86	83.31	86.17	89.03 t
38	16.19	2.36	83.81	86.17	89.03
42.1	16.09	2.26	83.91	86.17	89.03
46.2	15.84	2.01	84.16	86.17	89.03
47.8	15.91	2.08	84.09	86.17	89.03
50.4	15.53	1.7	84.47	86.17	89.03 wer
56.5	15.11	1.28	84.89	86.17	89.03
67.3	15.26	1.43	84.74	86.17	89.03
71.5	13.83	0	86.17	86.17	89.03 bfr
82.4	13.59		86.41	86.17	89.03
91.4	13.06		86.94	86.17	89.03
98	13.6		86.4	86.17	89.03
122	12.82		87.18	86.17	89.03
155	12.07		87.93	86.17	89.03
169.3	12.77		87.23	86.17	89.03
180.2	13.8		86.2	86.17	89.03
193.8	13.43		86.57	86.17	89.03
215	11.15		88.85	86.17	89.03
226.5	5.78		94.22	86.17	89.03 tobr
231.9	5.55		94.45	86.17	89.03 endr

BFL=Bankfull Left  
 BFR=Bankfull Right  
 WE=Waters edge  
 T=Thalweg  
 TOB=Top of Bank  
 TUC=Top of undercut  
 Buc=Bottom of undercut  
 UCW=Undercutwidth

Two Year SUMMARY		Mean	Max	Width:	Flood-prone	Entrench-
Year	Cross-section	Bankfull Width	Bankfull Depth	Bankfull Depth	Ratio	width Ratio
1995	1	55.1	1.47	2.27	37.5	60.61 1.1
2003	1	50.60	1.72	2.86	29.42	202.30 4.00

## Red Clover Cr below Chase Bridge X-sec 2



BFL=Bankfull Left

BFR=Bankfull Right

WE=Waters edge

T=Thalweg

TOB=Top of Bank

TUC=Top of undercut

Buc=Bottom of undercut

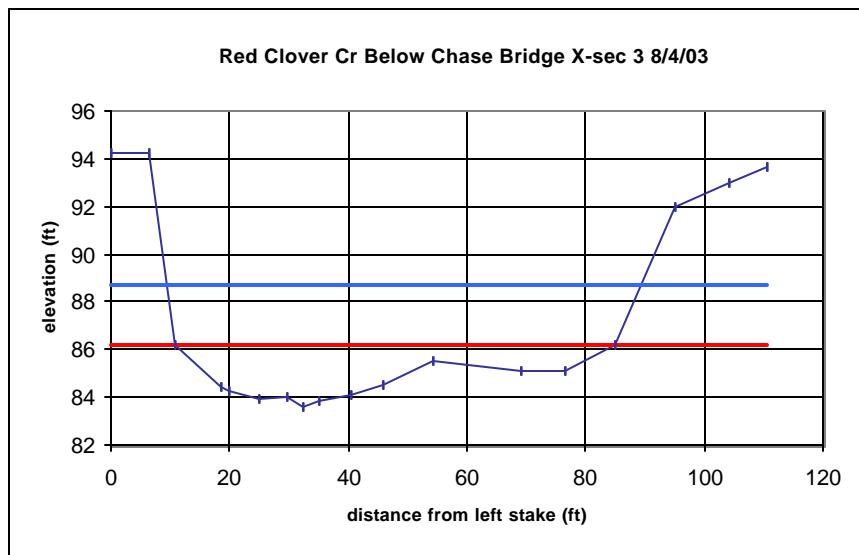
UCW=Undercutwidth

all measurements in feet

rd clover below chase crosection-2				8/4/03	
Dist from left stake	Total Depth	Bankfull depth	Total elevation	Bankfull elevation	2x bankfull elevation
0	5.64		94.36	88.84	91.06 tbml
3	5.89		94.11	88.84	91.06
8	4.8		95.2	88.84	91.06 tobl
11.5	7.07		92.93	88.84	91.06
12.2	10.64		89.36	88.84	91.06
16.4	11.16	0	88.84	88.84	91.06 bfl
23.5	12.91	1.75	87.09	88.84	91.06 wel
25.6	13.22	2.06	86.78	88.84	91.06
29	13.38	2.22	86.62	88.84	91.06 t
37	12.95	1.79	87.05	88.84	91.06
48	12.76	1.6	87.24	88.84	91.06
57.5	12.81	1.65	87.19	88.84	91.06
63	13.07	1.91	86.93	88.84	91.06
69.7	12.87	1.71	87.13	88.84	91.06 wer
77	11.16	0	88.84	88.84	91.06 bfr
85.4	4.19		95.81	88.84	91.06 tobr
95.3	3.97		96.03	88.84	91.06
102	3.71		96.29	88.84	91.06 endr

Two Year SUMMARY		Mean	Max	Width:	Flood-	Entrench-	
Year	Cross-section	Bankfull Width	Bankfull Depth	Bankfull Depth	Depth Ratio	prone width	ment Ratio
1995	2	64.4	1.39	2.48	46	180.32	2.8
2003	2	60.60	1.63	2.22	37.18	65.60	1.08

### Red Clover Cr below Chase Bridge X-sec 3



8/4/03 red clover crossection-3						
Dist from left stake	Total depth	Bankfull depth	Total elevation	Bankfull elevation	2x bankfull elevation	Notes
0	5.74		94.26	86.16	88.71	ttml
6.5	5.79		94.21	86.16	88.71	tobl
10.9	13.84	0	86.16	86.16	88.71	bfl
18.4	15.59	1.75	84.41	86.16	88.71	wel
20	15.74	1.9	84.26	86.16	88.71	
25	16.08	2.24	83.92	86.16	88.71	
29.5	15.99	2.15	84.01	86.16	88.71	
32.3	16.39	2.55	83.61	86.16	88.71	t
35	16.12	2.28	83.88	86.16	88.71	
40.4	15.91	2.07	84.09	86.16	88.71	
46	15.52	1.68	84.48	86.16	88.71	wer
54.4	14.51	0.67	85.49	86.16	88.71	
69	14.89	1.05	85.11	86.16	88.71	
76.4	14.93	1.09	85.07	86.16	88.71	
85	13.84	0	86.16	86.16	88.71	bfr
95	8		92	86.16	88.71	tobr
104	6.98		93.02	86.16	88.71	
110.4	6.35		93.65	86.16	88.71	endr

BFL=Bankfull Left

BFR=Bankfull Right

WE=Waters edge

T=Thalweg

TOB=Top of Bank

TUC=Top of undercut

Buc=Bottom of undercut

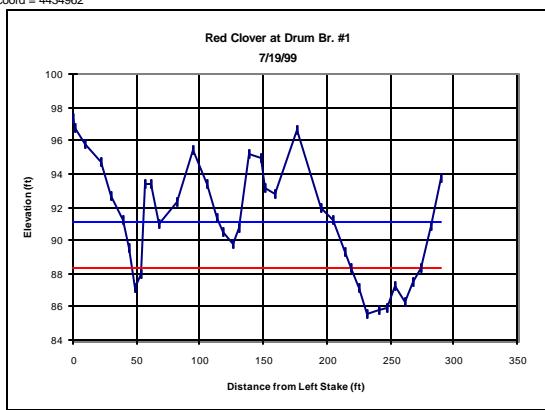
UCW=Undercutwidth

all measurements in feet

Two Year SUMMARY			Mean	Max	Width:	Flood-prone	Entrench-
Year	Cross-section	Bankfull Width	Bankfull Depth	Bankfull Depth	Depth Ratio	width	ment Ratio
1995	3	36.6	1.4	2.66	26.1	71.00	1.94
2003	3	74.10	1.62	2.55	45.74	79.60	1.07

UTM X-coord = 700048  
UTM Y-coord = 4434962

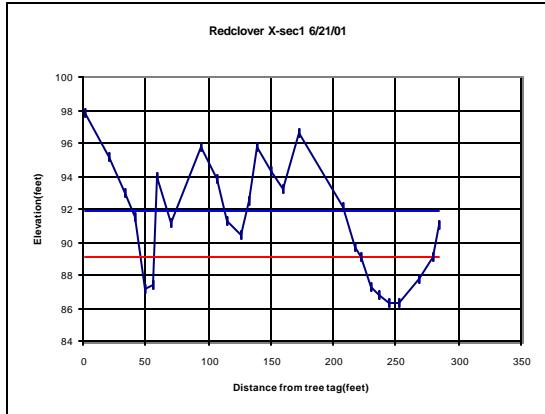
### Red Clover Cr below Drum Bridge X-sec 1



Blue Line=2x Bankfull Elev Red Line=Mean Bankfull Elev Dark Blue Line w/Markers=Basic Cross Section

Dist. Fror Total Bankfull 2xBankfull

Left Stake	Elevation	Elevation	Elevation
0.00	97.30	88.37	91.14
1.00	96.78	88.37	91.14
10.00	95.84	88.37	91.14
21.40	94.65	88.37	91.14
29.50	92.65	88.37	91.14
39.50	91.22	88.37	91.14
43.70	89.51	88.37	91.14
48.30	87.16	88.37	91.14
54.00	87.94	88.37	91.14
56.60	93.38	88.37	91.14
60.70	93.37	88.37	91.14
68.00	91.01	88.37	91.14
81.70	92.35	88.37	91.14
95.00	95.40	88.37	91.14
105.70	93.34	88.37	91.14
114.00	91.34	88.37	91.14
118.00	90.48	88.37	91.14
126.00	89.81	88.37	91.14
130.30	90.68	88.37	91.14
139.00	95.20	88.37	91.14
147.70	94.99	88.37	91.14
152.00	93.19	88.37	91.14
158.50	92.77	88.37	91.14
176.00	96.69	88.37	91.14
195.00	91.94	88.37	91.14
205.00	91.16	88.37	91.14
215.00	89.28	88.37	91.14
219.90	88.37	88.37	91.14
225.50	87.12	88.37	91.14
231.70	85.60	88.37	91.14
240.50	85.78	88.37	91.14
247.20	85.91	88.37	91.14
253.70	87.22	88.37	91.14
262.00	86.31	88.37	91.14
268.50	87.48	88.37	91.14
274.70	88.37	88.37	91.14
282	90.86	88.37	91.14
290	93.71	88.37	91.14



TOPipe=Top of pipe/bench mark

LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TOPool=Top of pool

S-MAX=Max. depth sediment lense

LB=Left bank

RB=Right bank

TOB=Top of bank

BF=Bankfull

T=Thalweg

Two Year SUMMARY		Mean	Max	Width:	Flood-	Entrench-
Year	Cross- section	Bankfull	Bankfull	Depth	prone	ment
1999	1	55.50	2.20	2.77	25.28	312.62
2001	1	54.50	1.83	2.77	29.78	427.90
					5.63	7.85

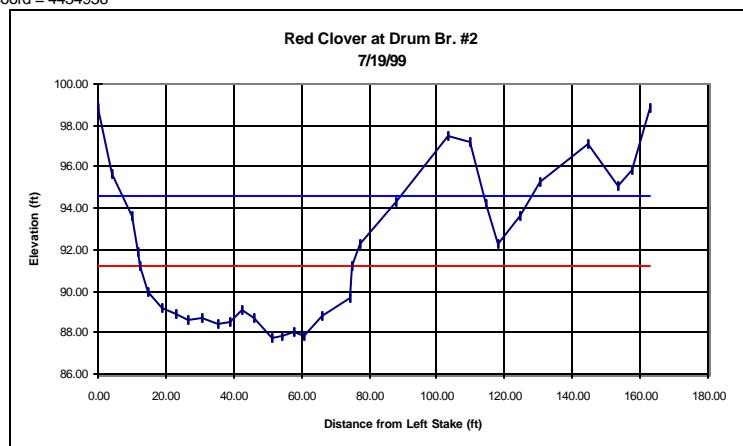
RedClover 6/21/01

Dist. Fror Total Total Bankfull 2xBankfu Notes

left stake	depth	Elevation	Elevation	Elevation	
2	2.21	97.79	89.08	91.85	TBM-LB
21	4.85	95.15	89.08	91.85	
33.55	6.97	93.03	89.08	91.85	
42.3	8.52	91.48	89.08	91.85	
49	12.9	87.1	89.08	91.85	
55.5	12.6	87.4	89.08	91.85	
59.7	6.1	93.9	89.08	91.85	
70	8.8	91.2	89.08	91.85	
95	4.23	95.77	89.08	91.85	
106.4	6.18	93.82	89.08	91.85	
115	8.7	91.3	89.08	91.85	
126	9.62	90.38	89.08	91.85	
133	7.55	92.45	89.08	91.85	
139.5	4.24	95.76	89.08	91.85	
150.9	5.7	94.3	89.08	91.85	
159.1	6.77	93.23	89.08	91.85	
173	3.36	96.64	89.08	91.85	TOBL
207.5	7.91	92.09	89.08	91.85	
218.15	10.3	89.7	89.08	91.85	
222.5	10.92	89.08	89.08	91.85	BFL
229.7	12.67	87.33	89.08	91.85	LEW
237	13.24	86.76	89.08	91.85	
245.1	13.69	86.31	89.08	91.85	T
253.2	13.65	86.35	89.08	91.85	
269	12.3	87.7	89.08	91.85	
279	10.92	89.08	89.08	91.85	BFR
284.4	9	91	89.08	91.85	TOBR

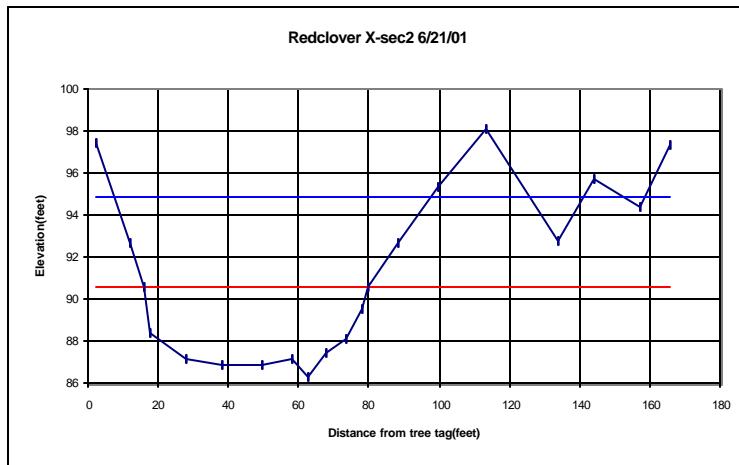
UTM X-coord = 700191  
UTM Y-coord = 4434936

### Red Clover Cr below Drum Bridge X-sec 2



Blue Line=2x Bankfull Elev    Red Line=Mean Bankfull Elev    Dark Blue Line w/Markers=Basic Cross Section

Dist. From Total Stake	Total Elevation	Bankfull Elevation	2xBankfull Elevation
0.00	98.80	91.19	94.62
4.00	95.63	91.19	94.62
9.80	93.61	91.19	94.62
11.70	91.91	91.19	94.62
12.60	91.19	91.19	94.62
14.90	89.94	91.19	94.62
18.60	89.16	91.19	94.62
23.20	88.85	91.19	94.62
26.70	88.62	91.19	94.62
30.90	88.75	91.19	94.62
35.50	88.38	91.19	94.62
39.00	88.49	91.19	94.62
42.30	89.11	91.19	94.62
46.20	88.75	91.19	94.62
51.50	87.76	91.19	94.62
54.50	87.88	91.19	94.62
57.80	88.06	91.19	94.62
61.00	87.84	91.19	94.62
66.00	88.80	91.19	94.62
74.30	89.68	91.19	94.62
74.90	91.19	91.19	94.62
77.60	92.31	91.19	94.62
88.00	94.28	91.19	94.62
103.00	97.45	91.19	94.62
110.00	97.18	91.19	94.62
114.70	94.19	91.19	94.62
118.20	92.26	91.19	94.62
124.40	93.59	91.19	94.62
130.50	95.31	91.19	94.62
144.60	97.06	91.19	94.62
153.50	95.07	91.19	94.62
157.50	95.85	91.19	94.62
162.70	98.83	91.19	94.62



RedClover	6/21/01	Dist. From Total Stake	Total Depth	Total Elevation	Bankfull Elevation	2xBankfull Notes Elevation	Notes
		left stake	depth	Elevation			
		2	2.57	97.43	90.55	94.86	TBM-LB
		11.8	7.37	92.63	90.55	94.86	TOBL
		16	9.45	90.55	90.55	94.86	BFL
		17.7	11.62	88.38	90.55	94.86	LEW
		28	12.81	87.19	90.55	94.86	
		37.9	13.11	86.89	90.55	94.86	
		49.5	13.11	86.89	90.55	94.86	
		58	12.9	87.1	90.55	94.86	
		62.8	13.76	86.24	90.55	94.86	T
		67.6	12.56	87.44	90.55	94.86	
		73.4	11.9	88.1	90.55	94.86	REW
		77.9	10.49	89.51	90.55	94.86	
		79.9	9.45	90.55	90.55	94.86	BFR
		88.45	7.37	92.63	90.55	94.86	
		99.6	4.67	95.33	90.55	94.86	
		113.2	1.9	98.1	90.55	94.86	
		133.7	7.21	92.79	90.55	94.86	
		144.3	4.32	95.68	90.55	94.86	
		157.4	5.63	94.37	90.55	94.86	
		166	2.7	97.3	90.55	94.86	

TOPipe=Top of pipe/bench mark  
LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TOPool=Top of pool

S-MAX=Max. depth sediment lense

LB=Left bank

RB=Right bank

TOB=Top of bank

BF=Bankfull

T=Thalweg

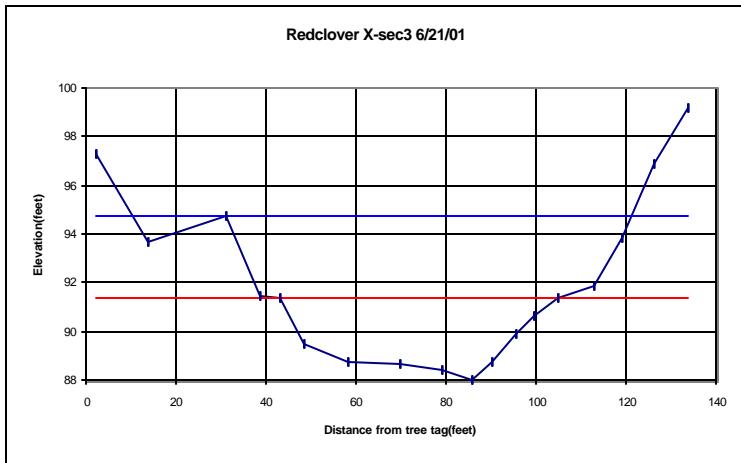
Two Year SUMMARY		Mean	Max	Width:	Flood-	Entrench-	
Cross- Bankfull		Bankfull	Bankfull	Bankfull	Depth	prone	ment
Year	section	Width	Depth	Depth	Ratio	width	Ratio
1999	2	62.30	2.52	3.43	24.74	121.15	1.94
2001	2	61.90	2.72	4.31	22.75	111.50	1.80

UTM X-coord = 700417  
UTM Y-coord = 4434830



Blue Line=2x Bankfull Elev    Red Line=Mean Bankfull Elev    Dark Blue Line w/Markers=Basic Cross Section

Dist. From Total Left Stake	Total Elevation	Bankfull Elevation	2xBankfull Elevation
0.00	98.36	91.76	94.63
4.00	96.85	91.76	94.63
13.00	94.76	91.76	94.63
19.00	96.04	91.76	94.63
26.50	95.99	91.76	94.63
32.30	96.49	91.76	94.63
33.60	93.40	91.76	94.63
36.00	92.62	91.76	94.63
39.30	91.51	91.76	94.63
42.40	94.69	91.76	94.63
44.60	93.60	91.76	94.63
45.00	91.76	91.76	94.63
46.80	90.51	91.76	94.63
53.00	90.84	91.76	94.63
58.80	88.89	91.76	94.63
66.40	89.29	91.76	94.63
71.00	89.15	91.76	94.63
77.00	89.29	91.76	94.63
84.70	89.53	91.76	94.63
90.20	90.21	91.76	94.63
95.80	91.09	91.76	94.63
98.80	91.76	91.76	94.63
99.00	93.26	91.76	94.63
103.50	93.46	91.76	94.63
107.50	92.74	91.76	94.63
109.80	92.90	91.76	94.63
117.00	93.96	91.76	94.63
122.00	95.69	91.76	94.63



RedClover 6/21/01				
Dist. From Total left stake	Depth	Total Elevation	Bankfull Elevation	2XBankfull Notes
2	2.68	97.32	91.38	94.77 TBM-LB
13.65	6.32	93.68	91.38	94.77
31.2	5.29	94.71	91.38	94.77 TOBL
38.7	8.58	91.42	91.38	94.77
43.25	8.62	91.38	91.38	94.77 BFL
48.4	10.51	89.49	91.38	94.77 LEW
58.2	11.27	88.73	91.38	94.77
69.9	11.37	88.63	91.38	94.77
78.9	11.59	88.41	91.38	94.77
85.8	12.01	87.99	91.38	94.77 T
90	11.28	88.72	91.38	94.77
95.65	10.1	89.9	91.38	94.77 REW
99.65	9.39	90.61	91.38	94.77
105.1	8.62	91.38	91.38	94.77 BFR
113	8.13	91.87	91.38	94.77
119	6.19	93.81	91.38	94.77 TOBR
126	3.14	96.86	91.38	94.77
133.7	0.85	99.15	91.38	94.77 End

TOPipe=Top of pipe/bench mark  
LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TOPool=Top of pool

S-MAX=Max. depth sediment lense

LB=Left bank

RB=Right bank

TOB=Top of bank

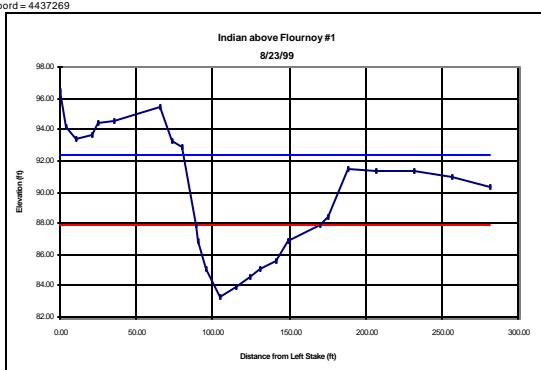
BF=Bankfull

T=Thalweg

Two Year SUMMARY		Mean	Max	Width:	Flood-	Entrench-	
Year	Cross-section	Width	Bankfull	Bankfull	Depth	prone	ment
1999	3	53.80	1.89	2.87	28.42	85.85	1.60
2001	3	59.85	2.05	3.39	29.19	85.50	1.42

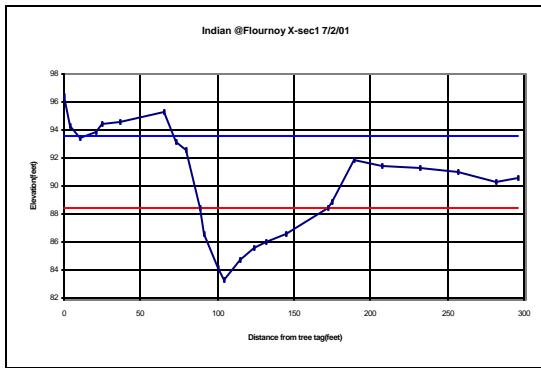
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UTM Y-coord = 4437269

### Indian Cr below Red Clover X-sec 1

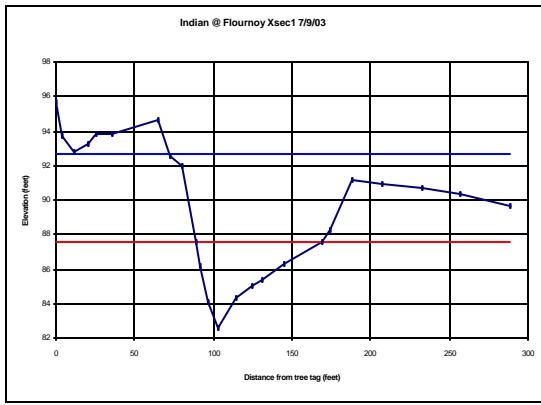


Blue Line=2x Bankfull Elev    Red Line=Mean Bankfull Elev    Dark Blue Line w/Markers=Basic Cross Section

Dist. From Left Stake	Total Depth	Bankfull Depth	2x Bankfull Depth
0.00	96.45	87.86	92.38
4.00	94.12	87.86	92.38
11.00	93.34	87.86	92.38
20.50	93.62	87.86	92.38
25.00	94.46	87.86	92.38
36.00	94.53	87.86	92.38
65.00	95.42	87.86	92.38
73.00	93.20	87.86	92.38
80.00	92.93	87.86	92.38
89.50	87.86	87.86	92.38
91.00	86.85	87.86	92.38
95.00	85.05	87.86	92.38
105.00	83.34	87.86	92.38
115.00	83.94	87.86	92.38
124.00	84.62	87.86	92.38
131.50	85.09	87.86	92.38
141.70	85.55	87.86	92.38
149.50	86.83	87.86	92.38
170.50	87.86	87.86	92.38
175.00	88.36	87.86	92.38
189.00	91.47	87.86	92.38
207.00	91.37	87.86	92.38
232.00	91.32	87.86	92.38
257.00	90.93	87.86	92.38
282.00	90.26	87.86	92.38



Dist. From Left Stake	Total Depth	Total Bankfull Depth	2x Bankfull Depth	Notes
0	3.53	96.47	88.48	93.64 TBM-LB
4	5.72	94.28	88.48	93.64
11	6.64	93.36	88.48	93.64
20.5	6.15	93.85	88.48	93.64
25	5.54	94.46	88.48	93.64
36	5.43	94.57	88.48	93.64
65	4.7	95.3	88.48	93.64 TOBL
73	6.86	93.14	88.48	93.64
80	7.39	92.61	88.48	93.64
88.5	11.52	88.48	88.48	93.64 BFL
91.9	13.49	86.51	88.48	93.64 LEW
100	15.85	84.15	88.48	93.64
104.65	16.68	83.32	88.48	93.64 T
115	15.31	84.69	88.48	93.64
124	14.38	85.62	88.48	93.64
131.5	14.06	85.94	88.48	93.64
145.3	13.42	86.58	88.48	93.64 REW
172.5	11.52	88.48	88.48	93.64 BFR
175	11.2	88.8	88.48	93.64
189	8.15	91.85	88.48	93.64 TOBR
207	8.55	91.45	88.48	93.64
232	8.78	91.22	88.48	93.64
257	9.02	90.98	88.48	93.64
282	9.65	90.35	88.48	93.64
296	9.42	90.58	88.48	93.64



Dist. from Left Stake	Total Depth	Total Bankfull Depth	2x Bankfull Depth	Notes
0	4.29	95.71	87.61	92.61 tbml
4	6.3	93.7	87.61	92.61
11	7.17	92.83	87.61	92.61
20.5	6.7	93.3	87.61	92.61
25	6.15	93.85	87.61	92.61
36	6.13	93.87	87.61	92.61
65	5.35	94.65	87.61	92.61 tobl
73	7.45	92.55	87.61	92.61
80	8.04	91.96	87.61	92.61
88.5	12.39	0	87.61	92.61 bfl
91.7	13.8	1.41	86.2	87.61
96	15.93	3.54	84.07	87.61
103.5	17.39	5	82.61	87.61
115	15.69	3.3	84.31	87.61
124	15.01	2.62	84.99	87.61
131.5	14.65	2.26	85.35	87.61
144.5	13.74	1.35	86.26	87.61
169.5	12.39	0	87.61	87.61
174.7	11.74		88.26	87.61
188	8.89		91.11	87.61
207	9.09		90.91	87.61
232	9.29		90.71	87.61
257	9.64		90.36	87.61
288	10.37		89.63	87.61

TOPipe=Top of pipe/bench mark

LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TOPool=Top of pool

S-MAX=Max depth sediment lens

LB=Left bank

RB=Right bank

TB=Top of bank

BF=Bankfull

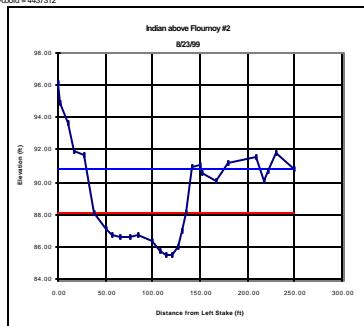
T=Thalweg

Three Year SUMMARY		Mean	Max	Width:	Flood-	Entrench-	
Year	section	Cross-	Bankfull	Bankfull	Depth	prone	ment
		Width	Depth	Depth	Ratio	width	Ratio
1999	1	81.0	2.70	4.52	30.0	201.0	2.5
2001	1	84.0	2.81	5.16	29.8	212.0	2.5
2003	1	81.0	2.44	5.00	33.3	224.0	2.8

UTM X-coord = 697979

### Indian Cr below Red Clover X-sec 2

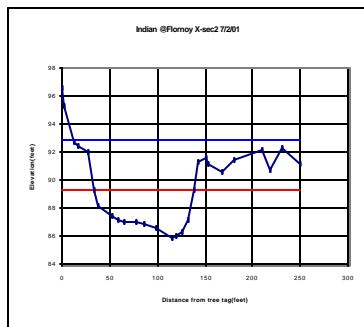
UTM Y-coord = 4437312



Blue Line=2x Bankfull Elev    Red Line=Mean Bankfull Elev    Dark Blue Line w/Markers=Basic Cross Section

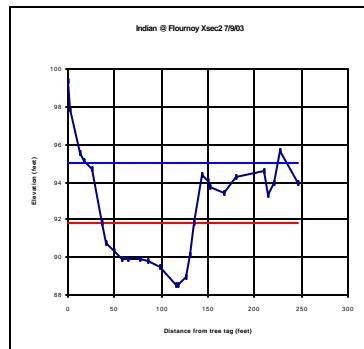
Dist. From Total Bankfull 2xBankfull  
Left Stake Elevation Elevation Elevation

0.00	96.18	88.11	90.77
2.00	94.93	88.11	90.77
9.60	93.64	88.11	90.77
16.50	91.93	88.11	90.77
26.50	91.63	88.11	90.77
37.50	88.11	88.11	90.77
51.50	87.10	88.11	90.77
57.70	86.78	88.11	90.77
64.90	86.59	88.11	90.77
76.70	86.62	88.11	90.77
85.30	86.70	88.11	90.77
98.50	86.40	88.11	90.77
108.00	85.72	88.11	90.77
114.30	85.45	88.11	90.77
119.80	85.49	88.11	90.77
126.00	86.02	88.11	90.77
131.30	86.95	88.11	90.77
136.00	88.11	88.11	90.77
141.60	90.95	88.11	90.77
150.00	91.08	88.11	90.77
153.00	90.55	88.11	90.77
167.00	90.10	88.11	90.77
180.00	91.15	88.11	90.77
209.00	91.55	88.11	90.77
217.00	90.11	88.11	90.77
222.00	90.71	88.11	90.77
230.00	91.85	88.11	90.77
250.00	90.98	88.11	90.77



Indian above Flomoy 7/2/01    TOPipe=Top of pipe/bench mark

Dist. from Total	Total	Bankfull	2xBankfull	Notes
<i>left stake depth</i> <i>depth</i> <i>Elevation</i> <i>Elevation</i> <i>Notes</i>				
0	3.44	95.56	89.35	92.81 TBMUL
2	4.73	95.27	89.35	92.81 MPD=Maximum pool depth
135	7.22	92.78	89.35	92.81 PCT=Pool tail crest
165	7.56	92.44	89.35	92.81 TP=Turning point
265	8.05	91.95	89.35	92.81 TOBL
346	10.65	89.35	89.35	92.81 SMAX=Max. depth sediment lens
38	11.91	88.09	89.35	92.81 LB=Left bank
525	12.56	87.44	89.35	92.81 LEW
649	13.07	86.89	89.35	92.81 RB=Right bank
767	13.01	86.99	89.35	92.81 T=Thalweg
853	13.11	86.89	89.35	92.81
985	13.45	86.55	89.35	92.81
1156	14.11	85.89	89.35	92.81 T
1198	14.02	85.98	89.35	92.81
126	13.74	86.27	89.35	92.81
1319	12.62	87.18	89.35	92.81 REW
1382	10.65	89.35	89.35	92.81 BFR
1428	8.71	91.29	89.35	92.81 TOBR
150	8.45	91.55	89.35	92.81
153	8.92	91.08	89.35	92.81
167	9.45	90.52	89.35	92.81
180	8.55	91.44	89.35	92.81
209	7.92	92.08	89.35	92.81
218	9.34	90.66	89.35	92.81
230	7.78	92.22	89.35	92.81
250	8.8	91.2	89.35	92.81



7/9/03 Indian @ rc crosed-2

Dist. from Total	Total	Bankfull	2x	Bankfull	Bankfull
<i>left stake depth</i> <i>depth</i> <i>depth</i> <i>elevation</i> <i>elevation</i> <i>Notes</i>					
0	0.69		99.31	91.78	95.02 ibml
2	2.1		97.9	91.78	95.02
135	4.5		95.5	91.78	95.02
165	4.85		95.15	91.78	95.02
265	5.32		94.68	91.78	95.02 tbb
36	8.22	0	91.78	91.78	95.02 bfl
40	9.22	1	90.78	91.78	95.02 wel
501	9.63	1.41	90.37	91.78	95.02
577	10.05	1.83	89.95	91.78	95.02
649	10.09	1.87	89.91	91.78	95.02
767	10.02	1.88	89.92	91.78	95.02
853	10.16	1.94	89.84	91.78	95.02
985	10.55	2.33	89.45	91.78	95.02
1156	11.42	3.2	88.58	91.78	95.02
1181	11.46	3.24	88.54	91.78	95.02 t
126	11.01	2.79	88.99	91.78	95.02
1303	9.83	1.61	90.17	91.78	95.02 wer
135	8.22	0	91.78	91.78	95.02 bfr
1428	5.64		94.36	91.78	95.02 tbr
150	5.91		94.09	91.78	95.02
153	6.29		93.71	91.78	95.02
167	6.57		93.43	91.78	95.02
180	5.71		94.29	91.78	95.02
209	5.44		94.56	91.78	95.02
214	6.7		93.3	91.78	95.02
220	6.01		93.99	91.78	95.02
228	4.4		95.6	91.78	95.02
247	6.02		93.98	91.78	95.02

TOPipe=Top of pipe/bench mark

Three Year SUMMARY					
Mean	Max	Width	Flood-	Entren-	
Cross-	Bankfu	Bankful	Depth	prone	ment
Year	sector	Width	Depth	Ratio	width
1999	2	97.5	1.76	2.66	55.3 193.2 2.0
2001	2	103.6	2.29	3.46	45.2 303.6 2.9
2003	2	99.0	1.92	3.24	51.5 242.0 2.4

SMAX=Max depth sediment lens

LB=Left bank

RB=Right bank

TB=Top of bank

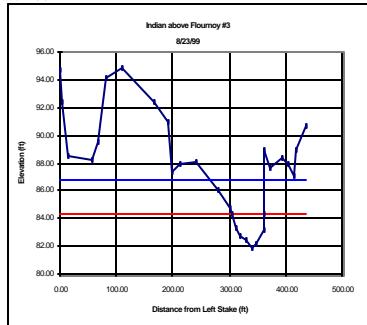
BF=Bankfull

T=Thalweg

UTM X-coord = 6982237

### Indian Cr below Red Clover X-sec 3

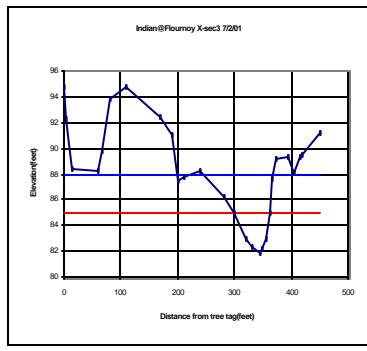
UTM Y-coord = 4437327



Blue Line=2x Bankfull Elev    Red Line=Mean Bankfull Elev    Dark Blue Line w/Markers=Basic Cross Section

Dist. From Total Bankfull 2xBankfull

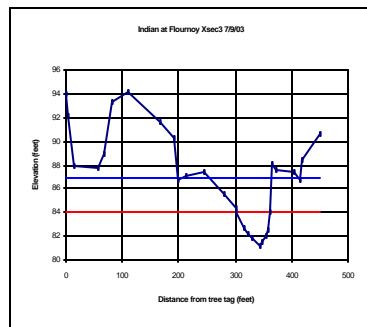
Left Stake	Elevation	Elevation	Elevation
0.00	94.75	84.35	86.77
3.00	92.46	84.35	86.77
13.00	88.53	84.35	86.77
58.50	88.25	84.35	86.77
67.40	89.54	84.35	86.77
80.40	94.06	84.35	86.77
110.00	94.78	84.35	86.77
160.00	92.46	84.35	86.77
191.00	90.92	84.35	86.77
198.00	87.33	84.35	86.77
211.00	87.91	84.35	86.77
241.00	88.09	84.35	86.77
281.50	86.03	84.35	86.77
300.00	84.76	84.35	86.77
304.70	84.35	84.35	86.77
311.00	83.34	84.35	86.77
320.40	82.78	84.35	86.77
330.40	82.44	84.35	86.77
339.00	81.93	84.35	86.77
349.00	82.10	84.35	86.77
361.00	83.23	84.35	86.77
361.01	84.35	84.35	86.77
362.00	88.95	84.35	86.77
373.00	87.67	84.35	86.77
393.00	88.39	84.35	86.77
406.00	87.92	84.35	86.77
414.50	87.01	84.35	86.77
419.00	88.99	84.35	86.77
436.00	90.65	84.35	86.77



Indian above Flomoy 7/20/01

Dist. From Total Total Bankfull 2xBankfull Notes

left stake	depth	Elevation	Elevation	Elevation
0	5.3	94.7	84.91	87.96 TBM&L
3	7.68	92.32	84.91	87.96
13	11.54	88.46	84.91	87.96
58.5	11.8	88.2	84.91	87.96
67.4	10.15	89.85	84.91	87.96
80.4	6.12	93.88	84.91	87.96
110	5.3	94.7	84.91	87.96
168	7.61	92.39	84.91	87.96
191	8.91	91.09	84.91	87.96 TOBL
199	12.54	87.46	84.91	87.96
211	12.3	87.7	84.91	87.96
241	11.81	88.19	84.91	87.96
281.5	13.78	86.22	84.91	87.96
300	15.0	84.94	84.91	87.96
300.7	15.09	84.91	84.91	87.96 BFL
321.6	17.0	82.92	84.91	87.96 LEW
330.4	17.65	82.35	84.91	87.96
344	18.14	81.85	84.91	87.96 T
349	17.84	82.16	84.91	87.96
362.2	17.07	82.93	84.91	87.96 REW
363.8	15.09	84.91	84.91	87.96 BFR
367.5	12.33	87.67	84.91	87.96 TOBR
373	10.82	89.12	84.91	87.96
393	10.68	89.32	84.91	87.96
406	11.99	88.01	84.91	87.96
414.5	10.74	89.26	84.91	87.96
419	10.6	89.4	84.91	87.96
449	8.84	91.16	84.91	87.96



Indian at Flomoy Xsec3 7/9/03

Dist from Total Dep Bankfull 2 Total elev Bankfull 2x Bankfull Notes

0	6.03	93.97	84.05	86.88 bml
3	7.91	92.09	84.05	86.88
13	12.1	87.9	84.05	86.88
58.5	12.31	87.69	84.05	86.88
67.4	11.1	88.9	84.05	86.88
80.4	6.6	93.32	84.05	86.88
110	5.9	94.1	84.05	86.88
168	8.31	91.69	84.05	86.88
191	9.8	90.2	84.05	86.88 btl
199	13.26	86.74	84.05	86.88
211	12.99	87.01	84.05	86.88
244	12.59	87.41	84.05	86.88
281.5	14.47	85.53	84.05	86.88
300	15.64	84.36	84.05	86.88
320	15.95	0	84.05	84.05 86.88 bfl
315.6	17.36	1.41	82.64	84.05 86.88 wel
321.6	17.77	1.82	82.23	84.05 86.88
330.4	18.18	2.23	81.82	84.05 86.88
344.3	18.78	2.83	81.22	84.05 86.88 t
349	18.54	2.59	81.46	84.05 86.88
362.2	18.04	2.09	81.98	84.05 86.88
369.4	17.39	1.44	82.61	84.05 86.88 wer
362	15.95	0	84.05	84.05 86.88 bfr
367	11.94	88.06	84.05	86.88 tbr
373	12.4	87.6	84.05	86.88
406	12.56	87.44	84.05	86.88
413.5	13.19	86.81	84.05	86.88
419	11.62	88.38	84.05	86.88
449	9.43	90.57	84.05	86.88

TOPipe=Top of pipe/bench mask

REW=Right edge of water

REV=Right edge of water

MPO=Maximum pool depth

TBM=Temporary bench mask

PCT=Pod tail crest

TP=Turning point

Three Year SUMMARY					
Mean	Max	Width:	Flood-	Entri-	ment
Cross- Bankfu	Bankfu	Bankfu	Depth	prone	ment
Year	sector	Width	Depth	Ratio	width
1999	3	56.3	1.71	2.42	32.9 94.6 1.7
2001	3	63.1	2.05	3.07	276.1 4.4
2003	3	60.0	1.80	2.83	33.3 214.9 3.6

TOPool=Top of pool

S-MAX=Max depth sediment lens

LB=Left bank

RB=Right bank

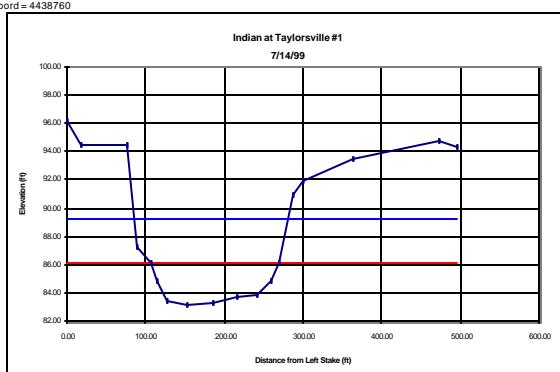
TOP=Top of bank

Bf=Bankfull

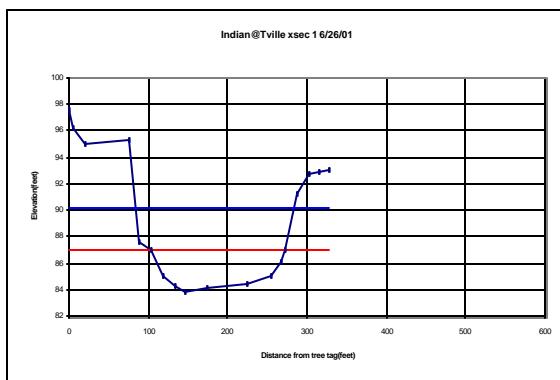
T=Thalweg

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UTM Y-coord = 4438760

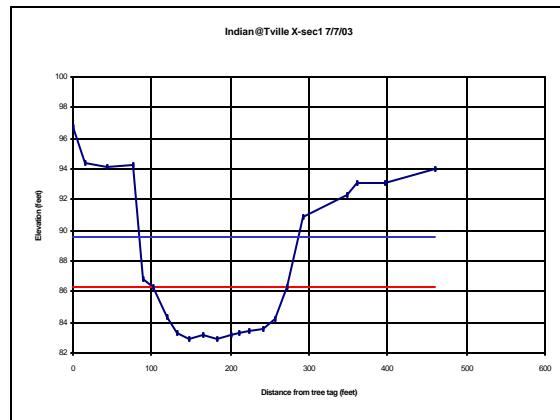
### Indian Cr below T-ville Bridge X-sec 1



Blue Line=2x Bankfull Elev    Red Line=Mean Bankfull Elev    Dark Blue Line w/Markers=Basic Cross Section



Indian @ Taylorsville 6/26/01					
Dist. From left stake	Total depth	Total elevation	Bankfull elevation	2x Bankfull elevation	Notes
0	2.36	97.64	86.97	90.19	TBM-LB
5.2	3.72	96.28	86.97	90.19	
19.4	4.92	95.08	86.97	90.19	
75.1	4.72	95.28	86.97	90.19	TOBL
89.4	12.38	87.62	86.97	90.19	
104.4	13.03	86.97	86.97	90.19	BFL
118.8	14.94	85.06	86.97	90.19	LEW
133	15.76	84.24	86.97	90.19	
146.6	16.25	83.75	86.97	90.19	T
175	15.89	84.11	86.97	90.19	
223.9	15.52	84.48	86.97	90.19	
254.5	14.99	85.01	86.97	90.19	REW
266.2	13.87	86.13	86.97	90.19	
271.9	13.03	86.97	86.97	90.19	BFR
287.6	8.73	91.27	86.97	90.19	TOBR
301.5	7.2	92.8	86.97	90.19	
314	7.15	92.85	86.97	90.19	
327.4	7.02	92.98	86.97	90.19	End



7/7/03 indian at tville crossect-1						
Dist from left stake	Total depth	Bankfull depth	2x			
			Total elevation	Bankfull elevation	Bankfull elevation	Notes
0	3.25		96.75	86.25	89.61	tbrl
15.4	5.65		94.35	86.25	89.61	
44	5.92		94.08	86.25	89.61	
75	5.75		94.25	86.25	89.61	tobl
87.8	13.14		86.86	86.25	89.61	
101	13.75	0	86.25	86.25	89.61	bfl
118.5	15.66	1.91	84.34	86.25	89.61	wel
133	16.76	3.01	83.24	86.25	89.61	
147	17.11	3.36	82.89	86.25	89.61	t
166	16.8	3.05	83.2	86.25	89.61	
182	17.07	3.32	82.93	86.25	89.61	
200	16.83	3.08	83.17	86.25	89.61	
211	16.64	2.89	83.36	86.25	89.61	
223.5	16.55	2.8	83.45	86.25	89.61	
240.4	16.48	2.73	83.52	86.25	89.61	
255.8	15.8	2.05	84.2	86.25	89.61	wer
271.5	13.75	0	86.25	86.25	89.61	bfr
292.5	9.11		90.89	86.25	89.61	tobr
349.5	7.65		92.35	86.25	89.61	
361.5	6.91		93.09	86.25	89.61	
397.5	6.96		93.04	86.25	89.61	
459.5	6.03		93.97	86.25	89.61	end

TOPipe=Top of pipe/bench mark

LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TOPool=Top of pool

S-MAX=Max. depth sediment lense

LB=Left bank

RB=Right bank

TOB=Top of bank

BF=Bankfull

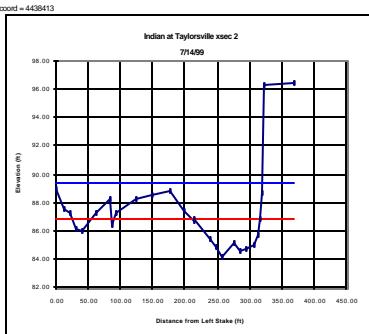
T=Thalweg

all measurements in feet

Three Year SUMMARY			Mean	Max	Width:	Flood-	Entrench-
Year	Cross- section	Bankfull Width	Bankfull Depth	Bankfull Depth	Depth Ratio	prone width	ment Ratio
1999	1	163.80	2.31	3.08	71.00	196.72	1.20
2001	1	167.50	2.00	3.22	83.75	261.40	1.56
2003	1	170.50	2.56	2.56	66.51	201.50	1.18

UTM X-coord = 684812  
UTM Y-coord = 4438413

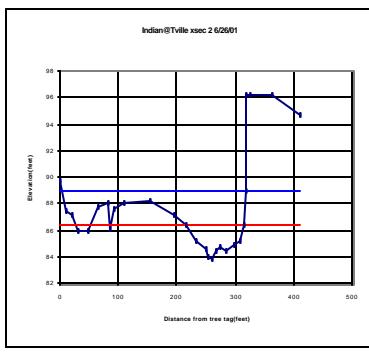
Indian Cr below T-ville Bridge x-sec 2



Dist. From Total Bankfull 2x Bankfull

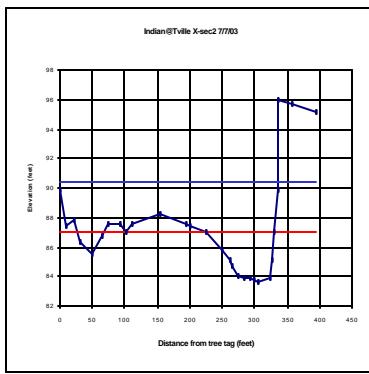
Left Stake	Elevation	Elevation	Elevation
1.00	88.95	86.76	89.41
13.00	87.57	86.76	89.41
23.00	87.24	86.76	89.41
31.50	86.07	86.76	89.41
41.60	85.91	86.76	89.41
61.00	87.29	86.76	89.41
82.80	88.18	86.76	89.41
85.50	86.38	86.76	89.41
93.20	87.24	86.76	89.41
123.50	88.29	86.76	89.41
148.00	88.46	86.76	89.41
178.00	88.84	86.76	89.41
200.00	87.31	86.76	89.41
213.00	86.68	86.76	89.41
213.50	86.76	86.76	89.41
237.50	85.46	86.76	89.41
249.50	84.96	86.76	89.41
257.60	84.11	86.76	89.41
277.50	85.18	86.76	89.41
286.00	84.61	86.76	89.41
295.50	84.65	86.76	89.41
306.70	85.04	86.76	89.41
313.10	85.85	86.76	89.41
315.80	86.76	86.76	89.41
318.80	86.63	86.76	89.41
322.00	90.33	86.76	89.41
370.00	96.41	86.76	89.41

Blue Line=2x Bankfull Elev Red Line=Mean Bankfull Elev Dark Blue Line w/Markers=Basic Cross Section



Dist. From Total Total Bankfull 2x Bankfull Notes

left stake	depth	elevation	elevation	elevation	Notes
0	10.37	89.63	86.4	88.97	TBM-LB
10.4	12.51	87.49	86.4	88.97	
21.45	12.8	87.2	86.4	88.97	
29.3	14	86	86.4	88.97	
49	14	86	86.4	88.97	
64.35	12.31	87.69	86.4	88.97	
81.2	11.99	88.01	86.4	88.97	
85.1	13.92	86.01	86.4	88.97	
93.6	12.43	87.57	86.4	88.97	
108.85	11.98	88.02	86.4	88.97	
155.1	11.74	88.28	86.4	88.97	
195.1	12.86	87.14	86.4	88.97	
215.3	13.6	86.4	86.4	88.97	BFL
232.4	14.78	85.22	86.4	88.97	
249.5	15.5	84.5	86.4	88.97	LEW
256	15.99	84.01	86.4	88.97	
259.3	16.17	83.83	86.4	88.97	T
269	15.59	84.41	86.4	88.97	
275.65	15.22	84.78	86.4	88.97	
283.8	15.63	84.37	86.4	88.97	
299.1	15.16	84.84	86.4	88.97	REW
309.7	14.76	85.24	86.4	88.97	
313.8	13.6	86.4	86.4	88.97	BFR
317	11.04	88.96	86.4	88.97	
319.8	3.85	96.15	86.4	88.97	TOBR
324	3.78	96.22	86.4	88.97	
362	3.77	96.23	86.4	88.97	
410	5.34	94.66	86.4	88.97	TBM-RB



7/7/03 indian@tville xsec2 2x

Dist. From Total	Bankfull	Total	Bankfull	Bankfull	Notes
left stake	Depth	depth	elevation	elevation	elevation
0	10.14		89.86	87.02	90.43
10.6	12.64		87.36	87.02	90.43
21.45	12.22		87.78	87.02	90.43
29.3	13.61		86.39	87.02	90.43
49	14.5		85.5	87.02	90.43
64.35	13.24		86.76	87.02	90.43
74	12.5		87.5	87.02	90.43
91	12.38		87.02	87.02	90.43
101	12.98		87.02	87.02	90.43
110	12.45		87.55	87.02	90.43
155	11.82		88.18	87.02	90.43
196	12.38		87.62	87.02	90.43
200	12.58		87.42	87.02	90.43
224.3	12.98	0	87.02	87.02	90.43
249.5	14.16	1.8	85.84	87.02	90.43
260.5	14.88	1.9	85.12	87.02	90.43
266	15.32	2.34	84.68	87.02	90.43
275.6	15.9	2.92	84.1	87.02	90.43
284.5	16.1	3.12	83.9	87.02	90.43
294	16.14	3.16	83.86	87.02	90.43
299	16.21	3.23	83.79	87.02	90.43
306	16.39	3.41	83.61	87.02	90.43
322.8	16.13	3.15	83.87	87.02	90.43
331	12.98	0	87.02	87.02	90.43
335	10.15		89.85	87.02	90.43
336.5	4.01		95.99	87.02	90.43
356	4.24		95.76	87.02	90.43
396	4.88		95.12	87.02	90.43

TOPB=Top of pipe bend mark

LEV=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Tuning point

TOPo=Top of pool

S-MAX=Max depth sediment lens

LB=Left bank

RB=Right bank

TB=Top of bank

BF=Bankfull

T=Thalweg

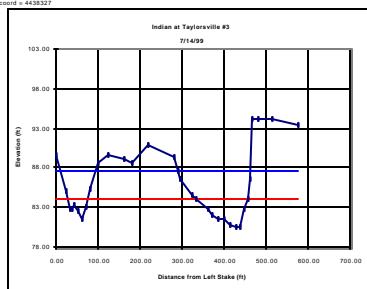
all measurements in feet

Three Year SUMMARY					
Year	Mean	Max	Width	Flood- prone	Entrance ratio
Cross- sector	Bankfull	Bankfull	Depth	Depth	width Ratio
1999	2	####	1.82	2.65	56.36
2001	2	98.50	1.64	2.57	60.06
2003	2	####	2.39	3.41	44.66

entrance ratio

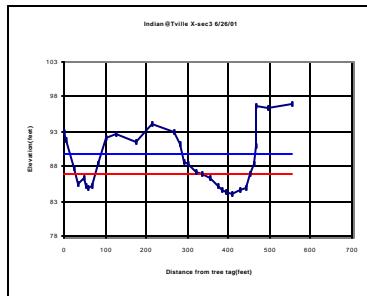
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### Indian Cr below Tville Bridge x-sec 3

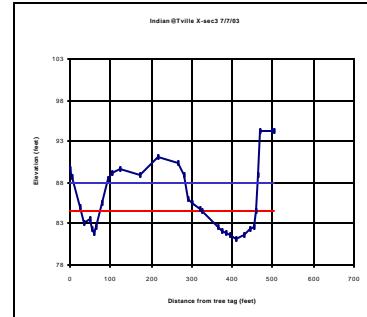


Blue Line=2x Bankfull Elev    Red Line=Mean Bankfull Elev    Dark Blue Line w/Markers=Basic Cross Section

Dist. From Stake	Total	Bankfull	2xBankfull
0.00	89.59	84.07	87.59
23.00	85.13	84.07	87.59
32.30	82.92	84.07	87.59
36.30	82.71	84.07	87.59
41.00	83.26	84.07	87.59
51.60	82.63	84.07	87.59
60.30	81.66	84.07	87.59
71.00	83.08	84.07	87.59
80.20	85.31	84.07	87.59
98.50	88.65	84.07	87.59
124.90	89.65	84.07	87.59
162.40	89.10	84.07	87.59
180.00	88.63	84.07	87.59
218.70	90.78	84.07	87.59
281.00	89.24	84.07	87.59
289.00	87.55	84.07	87.59
294.00	86.48	84.07	87.59
323.00	84.55	84.07	87.59
331.40	84.07	84.07	87.59
361.80	82.77	84.07	87.59
371.00	82.10	84.07	87.59
386.00	81.65	84.07	87.59
402.30	81.45	84.07	87.59
414.50	80.88	84.07	87.59
426.50	80.55	84.07	87.59
436.60	80.60	84.07	87.59
449.50	82.70	84.07	87.59
456.80	84.07	84.07	87.59
461.50	86.58	84.07	87.59
466.00	94.14	84.07	87.59
481.00	94.24	84.07	87.59
516.00	94.11	84.07	87.59
576.00	93.38	84.07	87.59



Dist. From Stake	Total	Total	Bankfull	2xBankfull	Notes
0	92.86	86.91	89.67	TBM-LB	
3	91.16	91.84	86.91	89.67	
24	12.09	87.91	86.91	89.67	
35	14.4	85.6	86.91	89.67	
40.5	13.81	86.19	86.91	89.67	
54	14.9	85.1	86.91	89.67	
58.1	15.1	84.81	86.91	89.67	
65.2	14.81	85.19	86.91	89.67	
82	11.54	88.46	86.91	89.67	
102.3	7.93	92.11	86.91	89.67	
124.7	7.23	92.71	86.91	89.67	TsThalweg
174.3	8.44	91.56	86.91	89.67	
216.3	6	94	86.91	89.67	
267.3	6.93	93.07	86.91	89.67	TOBL
280.5	8.83	91.17	86.91	89.67	
293.3	11.43	88.57	86.91	89.67	
300	11.74	88.26	86.91	89.67	
319	12.77	87.23	86.91	89.67	
335.4	13.0	86.91	86.91	89.67	BFL
352.8	13.7	88.22	86.91	89.67	
374.6	14.95	85.05	86.91	89.67	LEW
383.5	15.37	84.63	86.91	89.67	
394	15.6	84.4	86.91	89.67	
404.3	15.85	84.15	86.91	89.67	T
426.1	15.37	84.63	86.91	89.67	
443.5	15.01	84.99	86.91	89.67	REW
454.1	13.0	86.91	86.91	89.67	BFR
459.6	11.78	88.22	86.91	89.67	
464.8	8.93	91.07	86.91	89.67	
466.5	3.25	96.75	86.91	89.67	TOBR
498	3.51	96.49	86.91	89.67	
552	2.94	97.06	86.91	89.67	End



Dist from Stake	Total	Bankfull	Total	Bankfull	bankfull
0	10.26		89.74	84.56	87.88 lsm
3	11.3		88.7	84.56	87.88
24	14.96		85.04	84.56	87.88
35	17		83	84.56	87.88
40.5	16.45		83.55	84.56	87.88
54	17.71		82.29	84.56	87.88
58.1	18.11		81.89	84.56	87.88 of
65.2	17.47		82.53	84.56	87.88
69	14.37		85.63	84.56	87.88
93	11.53		88.47	84.56	87.88
103	10.87		89.13	84.56	87.88
124	10.27		89.73	84.56	87.88
174	11.11		88.89	84.56	87.88
216	8.81		91.19	84.56	87.88
267	9.73		90.27	84.56	87.88 lsl
280.5	11.05		88.95	84.56	87.88
293	13.93		86.07	84.56	87.88
300	14.42		85.58	84.56	87.88
319	15.31		84.95	84.56	87.88
327.5	15.44	0	84.56	84.56	87.88 lfl
363.4	17.35	1.92	82.64	84.56	87.88 vel
374.6	17.79	2.35	82.21	84.56	87.88
383.5	18.09	2.65	81.91	84.56	87.88
394	18.37	2.93	81.63	84.56	87.88
407.1	18.7	3.32	81.24	84.56	87.88 1
428	18.4	2.98	81.6	84.56	87.88
443.5	17.67	2.23	82.33	84.56	87.88
451.85	17.3	1.86	82.7	84.56	87.88 ver
459.5	15.44	0	84.56	84.56	87.88 Mr
465	10.38		89.02	84.56	87.88
467.5	5.7		94.3	84.56	87.88 lsl
498	5.71		94.29	84.56	87.88
501	5.68		94.22	84.56	87.88 endr

TOP=Top of pipe/bench mark

LEW=Left edge of water

REW=Right edge of water

TOB=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TOPo=Top of pool

S-MAX=Max depth sediment lens

LBl=left bank

RBl=right bank

TOBn=Top of bank

BF=Bankfull

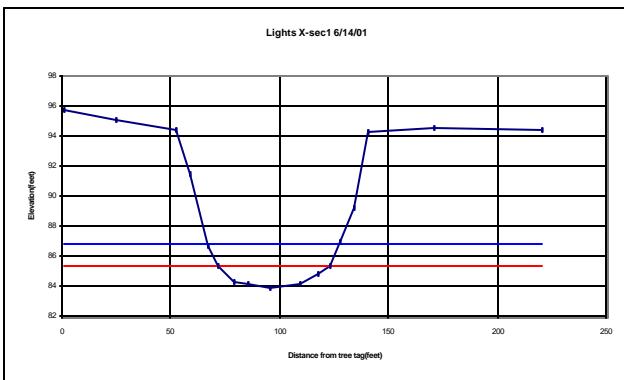
all measurements in feet

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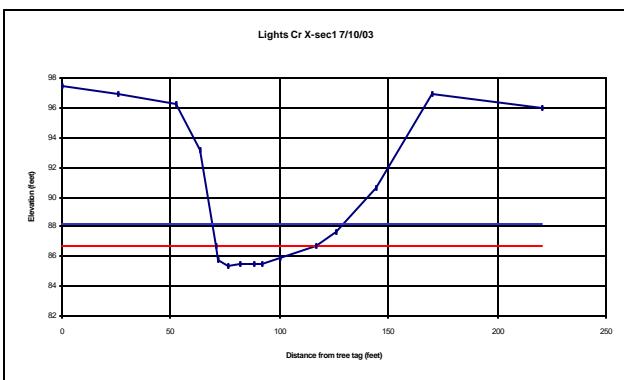
### Lights Cr X-sec 1



Blue Line=2x Bankfull Elev    Red Line=Mean Bankfull Elev    Dark Blue Line w/Markers=Basic Cross Section



Lights 6/14/01					
Dist. From left stake	Total depth	Total Elevation	Bankfull Elevation	2xBankfull Elevation	Notes
1	4.3	95.7	85.37	86.85	TBM-LB
25	4.9	95.1	85.37	86.85	
52	5.65	94.35	85.37	86.85	TOBL
59.2	8.55	91.45	85.37	86.85	
67.5	13.36	86.64	85.37	86.85	
72.05	14.63	85.37	85.37	86.85	BFL
78.8	15.71	84.29	85.37	86.85	
85.2	15.9	84.1	85.37	86.85	LEW
95.3	16.11	83.89	85.37	86.85	T
109.3	15.84	84.16	85.37	86.85	REW
118	15.2	84.8	85.37	86.85	
123	14.63	85.37	85.37	86.85	BFR
128	13.03	86.97	85.37	86.85	
134.2	10.75	89.25	85.37	86.85	
140.4	5.75	94.25	85.37	86.85	TOBR
170.9	5.42	94.58	85.37	86.85	
220.6	5.65	94.35	85.37	86.85	TBM-RB



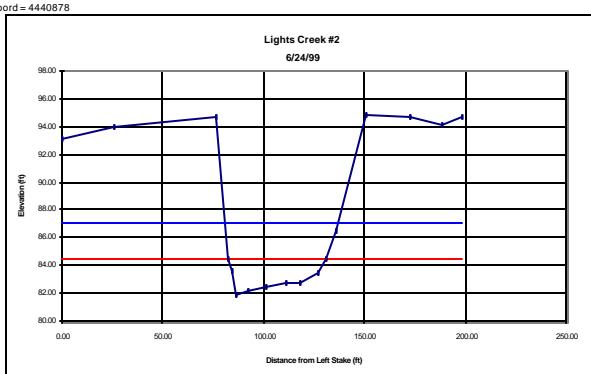
7/10/03 lights crossection-1					
Dist from le	Total Depth	Bankfull dep	Total eleva	Bankfull elev	2x Bankfull Notes
0	2.5		97.5	86.75	88.2 tbml
26	3.02		96.98	86.75	88.2
52	3.75		96.25	86.75	88.2 tob
63	6.88		93.12	86.75	88.2
70.5	13.25	0	86.75	86.75	88.2 bfl
71.5	14.29	1.04	85.71	86.75	88.2 wel
76	14.7	1.45	85.3	86.75	88.2 t
82.2	14.54	1.29	85.46	86.75	88.2
88.2	14.52	1.27	85.48	86.75	88.2
92.1	14.44	1.19	85.56	86.75	88.2
100	14.16	0.91	85.84	86.75	88.2 wer
116.9	13.25	0	86.75	86.75	88.2 bfr
125.8	12.31		87.69	86.75	88.2
144	9.42		90.58	86.75	88.2
170	3.05		96.95	86.75	88.2 tob
220.6	4		96	86.75	88.2 endr

TOPipe=Top of pipe/bench mark  
LEW=Left edge of water  
REW=Right edge of water  
MPD=Maximum pool depth  
TBM=Temporary bench mark  
PCT=Pool tail crest  
TP=Turning point  
TOPool=Top of pool  
S-MAX=Max. depth sediment lens  
LB=Left bank  
RB=Right bank  
TOB=Top of bank  
BF=Bankfull  
T=Thalweg  
all measurements in feet

Three Year SUMMARY		Mean	Max	Width:	Flood-	Entrench-
Year	Cross- section	Bankfull Width	Bankfull Depth	Depth Ratio	prone width	ment Ratio
1999	1	47.20	1.88	2.55	25.15	55.79
2001	1	49.95	0.94	1.48	53.13	65.23
2003	1	46.40	1.02	1.45	45.43	59.60

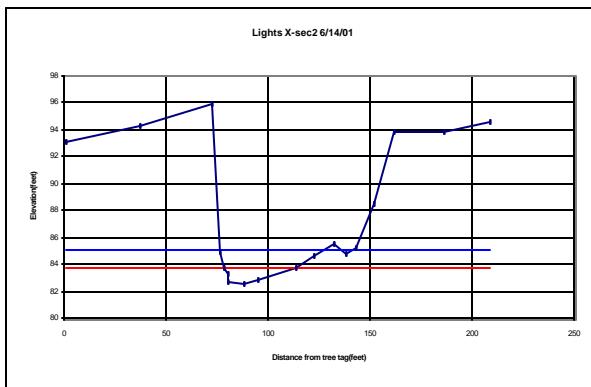
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### Lights Cr X-sec 2

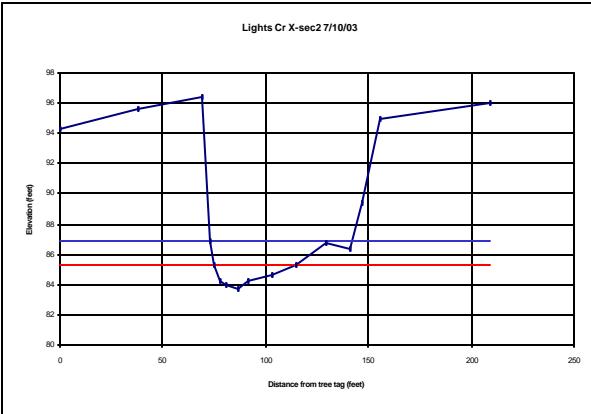


Dist. From Left Stake	Total depth	Bankfull depth	2x Bankfull	Elevation
0.00	93.15	84.46	87.07	
26.00	94.00	84.46	87.07	
76.50	94.67	84.46	87.07	
82.20	84.46	84.46	87.07	
84.70	83.57	84.46	87.07	
86.30	81.85	84.46	87.07	
92.00	82.20	84.46	87.07	
101.00	82.45	84.46	87.07	
111.00	82.75	84.46	87.07	
118.40	82.74	84.46	87.07	
126.60	83.48	84.46	87.07	
131.00	84.46	84.46	87.07	
136.20	86.41	84.46	87.07	
151.00	94.83	84.46	87.07	
173.00	94.75	84.46	87.07	
188.00	94.05	84.46	87.07	
198.00	94.65	84.46	87.07	

Blue Line=2x Bankfull Elev      Red Line=Mean Bankfull Elev      Dark Blue Line w/Markers=Basic Cross Section



Lights	6/14/01	Dist. From left stake	Total depth	Total elevation	Bankfull elevation	2x Bankfull elevation	Notes
1	6.93	93.07	83.78	84.99	TBM-LB		
37	5.78	94.22	83.78	84.99	TOBL		
72.5	4.09	95.91	83.78	84.99			
76.4	15.15	84.85	83.78	84.99			
78.8	16.22	83.78	83.78	84.99	BFL		
80.5	16.74	83.26	83.78	84.99			
80.3	17.28	82.72	83.78	84.99	LEW		
88.5	17.43	82.57	83.78	84.99	T		
94.9	17.18	82.82	83.78	84.99	REW		
113.3	16.22	83.78	83.78	84.99	BFR		
122.4	15.4	84.6	83.78	84.99			
132.2	14.47	85.53	83.78	84.99			
138.7	15.18	84.82	83.78	84.99			
143.5	14.8	85.2	83.78	84.99			
151.5	11.55	88.45	83.78	84.99			
161.9	6.23	93.77	83.78	84.99	TOBR		
186.5	6.14	93.86	83.78	84.99			
209.2	5.45	94.55	83.78	84.99			



7/10/03 lights crosection-2						
Dist from left stake	Total depth	Bankfull depth	Total elevation	Bankfull elevation	2x bankfull elevation	Notes
0	5.7		94.3	85.3	86.94	ttml
38	4.42		95.58	85.3	86.94	
69	3.6		96.4	85.3	86.94	tobl
73	13.18		86.82	85.3	86.94	
75	14.7	0	85.3	85.3	86.94	bfl
77.5	15.74	1.04	84.26	85.3	86.94	wel
80.5	16.05	1.35	83.95	85.3	86.94	
86.3	16.34	1.64	83.66	85.3	86.94	t
91.8	15.83	1.13	84.17	85.3	86.94	
103	15.39	0.69	84.61	85.3	86.94	wer
115	14.7	0	85.3	85.3	86.94	bfr
129	13.22		86.78	85.3	86.94	
141	13.59		86.41	85.3	86.94	
147	10.57		89.43	85.3	86.94	
155.6	5.02		94.98	85.3	86.94	tobr
209.2	4		96	85.3	86.94	endr

TOPipe=Top of pipe/bench mark

LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TOPool=Top of pool

S-MAX=Max. depth sediment lense

LB=Left bank

RB=Right bank

TOB=Top of bank

BF=Bankfull

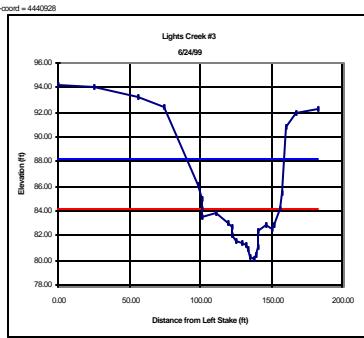
T=Thalweg

all measurements in feet

Three Year SUMMARY		Mean	Max	Width:	Flood-	Entrench-
Cross-	Bankfull	Bankfull	Bankfull	Depth	prone	ment
Year	section	Width	Depth	Depth	Ratio	
1999	2	48.80	1.74	2.61	28.05	56.62 1.16
2001	2	33.50	1.32	1.21	25.45	73.00 2.20
2003	2	40.00	0.98	1.64	41.03	70.20 1.76

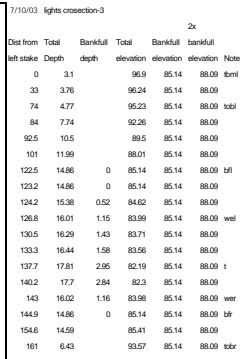
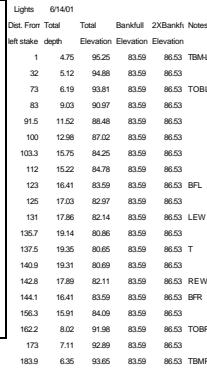
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UTM Y-coord = 4440328

### Lights Cr X-sec 3



Blue Line=2x Bankfull Elev   Red Line=Mean Bankfull Elev   Dark Blue Line w/Markers=Basic Cross Section

Dist. From Total	Total	Bankfull	2x Bankfull	Elevation	Elevation	Elevation	Elevation
0.00	94.25	84.16	88.26				
26.00	94.00	84.16	88.26				
57.00	93.20	84.16	88.26				
74.00	92.50	84.16	88.26				
98.00	86.06	84.16	88.26				
101.50	85.05	84.16	88.26				
102.00	84.16	84.16	88.26				
102.01	83.56	84.16	88.26				
111.00	83.86	84.16	88.26				
120.00	82.97	84.16	88.26				
122.70	82.63	84.16	88.26				
123.10	82.09	84.16	88.26				
123.30	81.58	84.16	88.26				
129.00	81.34	84.16	88.26				
132.90	81.20	84.16	88.26				
134.00	80.96	84.16	88.26				
134.80	80.24	84.16	88.26				
137.70	80.06	84.16	88.26				
139.10	80.36	84.16	88.26				
140.70	81.05	84.16	88.26				
141.00	82.35	84.16	88.26				
147.00	82.90	84.16	88.26				
151.90	82.46	84.16	88.26				
152.10	82.85	84.16	88.26				
155.70	84.16	84.16	88.26				
158.30	85.50	84.16	88.26				
160.40	90.75	84.16	88.26				
167.60	91.90	84.16	88.26				
183.00	92.35	84.16	88.26				



Dist. from Total	Total	Bankfull	2x Bankfull	Elevation	Elevation	Elevation	Elevation
0	95.25	83.59	86.53	TBMALB			
32	94.88	83.59	86.53				
73	93.81	83.59	86.53	TOBL			
83	93.97	83.59	86.53				
91.5	11.52	88.48	83.59	86.53			
100	12.98	87.02	83.59	86.53			
103.3	15.75	84.25	83.59	86.53			
112	15.22	84.78	83.59	86.53			
123	16.41	83.59	83.59	86.53	BFL		
125	17.03	82.97	83.59	86.53			
131	17.86	82.14	83.59	86.53	LEW		
135.7	19.14	80.86	83.59	86.53			
137.5	19.35	80.65	83.59	86.53	T		
140.9	19.31	80.69	83.59	86.53			
142.8	17.89	82.11	83.59	86.53	REW		
144.1	16.41	83.59	83.59	86.53	BFR		
158.3	15.91	84.09	83.59	86.53			
162.2	8.02	91.96	83.59	86.53	TOBR		
173	7.11	92.89	83.59	86.53			
183.9	6.35	93.65	83.59	86.53	TBMR		

TOPipe=Top of pipe/bench mark

LEV=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Post tail crest

TP=Turning point

TOP=Top of pool

S-MAX=Max. depth sediment lens

LB=Left bank

RB=Right bank

TOB=Top of bank

BF=Bankfull

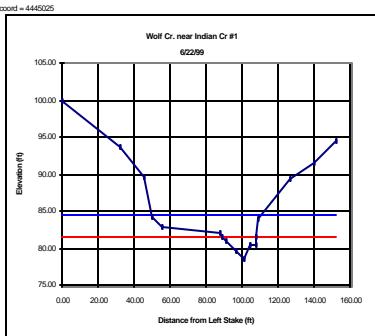
T-Thalweg

all measurements in feet

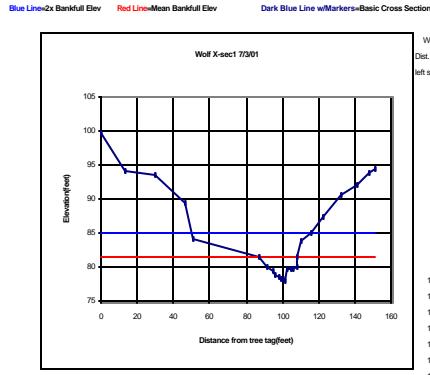
Three Year SUMMARY							
Year	Cross- sector	Mean Width	Max Bankfu	Bankful Depth	Depth prone	Flood- width	Entrench- ment
1999	3	53.70	2.25	4.10	23.86	69.60	1.30
2001	3	20.10	1.73	2.94	11.61	57.30	2.85
2003	3	22.40	1.29	2.95	17.33	49.90	2.23

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UTM Y-coord = 4445025

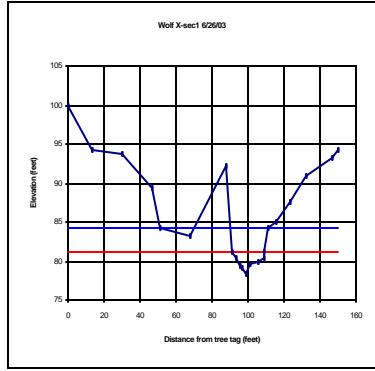
### Wolf Cr X-sec 1



Dist. From Stake	Total	Bankfull	2xBankfull	Elevation	Elevation
0.00	100.00	81.5	84.55		
31.80	93.54	81.5	84.55		
45.50	89.65	81.5	84.55		
50.50	84.06	81.5	84.55		
56.00	82.80	81.5	84.55		
87.50	82.15	81.5	84.55		
88.60	81.50	81.5	84.55		
91.00	80.89	81.5	84.55		
96.60	79.50	81.5	84.55		
100.80	78.45	81.5	84.55		
104.00	80.30	81.5	84.55		
108.10	80.51	81.5	84.55		
108.20	81.50	81.5	84.55		
109.40	83.79	81.5	84.55		
126.75	89.19	81.5	84.55		
140.00	91.60	81.5	84.55		
152.00	94.40	81.5	84.55		



Wolf 7/3/01					
Dist. From Stake	Total	Total	Bankfull	2xBankfull	Notes
left stake	depth	Elevation	Elevation	Elevation	
0	0.42	99.58	81.49	84.99	TBM/LB
13	5.8	94.2	81.49	84.99	
30	6.34	93.66	81.49	84.99	
46.8	10.65	89.35	81.49	84.99	TOBL
50.7	15.8	84.1	81.49	84.99	
87.5	18.51	81.49	81.49	84.99	BFL
92.1	20.2	79.98	81.49	84.99	LEW
94.7	20.8	79.4	81.49	84.99	
96.3	21.26	78.74	81.49	84.99	
98	21.5	78.5	81.49	84.99	
99.2	21.85	78.15	81.49	84.99	
100	21.85	78.15	81.49	84.99	
101.2	22.0	77.99	81.49	84.99	T
102.8	20.41	79.59	81.49	84.99	
104.6	20.43	79.57	81.49	84.99	
106.2	20.42	79.58	81.49	84.99	
107.9	20.09	79.91	81.49	84.99	
108.5	18.51	81.49	81.49	84.99	BFR
110.6	16.08	83.92	81.49	84.99	
115.9	14.98	85.02	81.49	84.99	
123	12.63	87.37	81.49	84.99	
132.3	9.49	90.51	81.49	84.99	
141.5	8.05	91.95	81.49	84.99	
147.7	6.09	93.91	81.49	84.99	
151.4	5.48	94.52	81.49	84.99	Pump-house



6/26/03 wolf crossed-1					
2x					
Dist from Stake	Total	Bankfull	Total	Bankfull	bankfull
left stake	Depth	depth	Elevation	elevation	elevation
0	0.14		99.86	81.23	84.17
13	5.82		94.18	81.23	84.17
30	6.33		93.67	81.23	84.17
46.8	10.66		89.34	81.23	84.17 tobl
50.7	15.78		84.22	81.23	84.17
68	16.92		83.08	81.23	84.17
87.5	7.83		92.17	81.23	84.17
91.45	18.77	0	81.23	81.23	84.17 bfl
93.25	19.56	0.79	80.44	81.23	84.17 wel
95.5	20.69	1.92	79.31	81.23	84.17
96.9	20.81	2.04	79.19	81.23	84.17
99.3	21.71	2.94	78.29	81.23	84.17 t
101.2	20.5	1.73	79.5	81.23	84.17
106	20.15	1.38	79.85	81.23	84.17
108.5	19.74	0.97	80.26	81.23	84.17 wer
109	18.77	0	81.23	81.23	84.17 br
110.6	15.75		84.25	81.23	84.17
115	15		85	81.23	84.17 tbr
123	12.38		87.62	81.23	84.17
132.3	9.22		90.78	81.23	84.17
147	6.73		93.27	81.23	84.17
150	5.87		94.13	81.23	84.17

Three Year SUMMAR					
Year	Cross- sector	Bankfull	Bankfull	Depth	Flood- prone
	Width	Depth	Depth	Ratio	ment
1999	1	19.60	1.57	3.05	12.48
2001	1	21.00	2.44	3.50	9.41 #####
2003	1	17.55	1.47	2.94	11.93 58.20 3.32

TP=Top of pipe/bank mark

LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bank mark

PCT=Pool tail crest

TP=Turning point

TOP=Top of pool

S-MAX=Max depth sediment lens

LS=Left bank

RB=Right bank

TB=Top of bank

BF=Bankfull

T-Thalweg

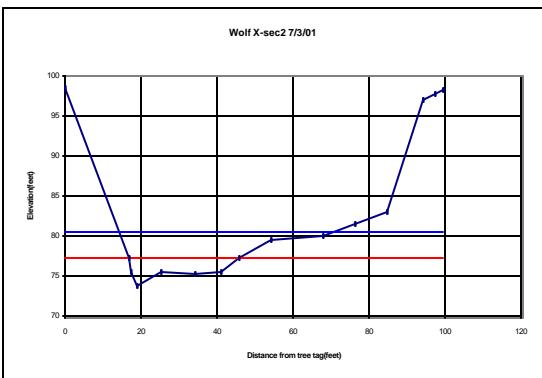
all measurements in feet

UTM X-coord = 676101  
UTM Y-coord = 4445068

### Wolf Cr X-sec 2

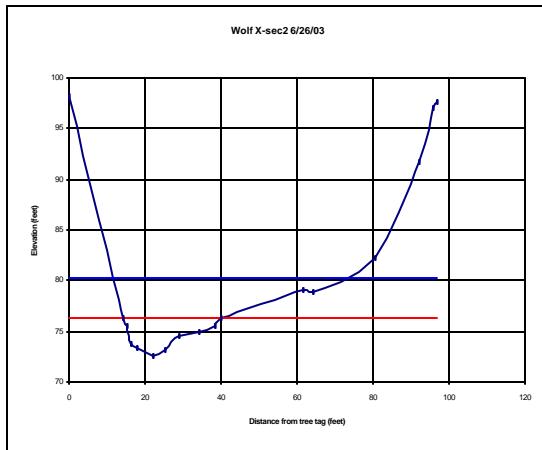


Blue Line=2x Bankfull Elev    Red Line=Mean Bankfull Elev    Dark Blue Line w/Markers=Basic Cross Section



Dist. From Left Stake	Total Elevation	Bankfull Elevation	2xBankfull Elevation
0.00	98.22	77.04	79.04
14.50	77.65	77.04	79.04
15.20	77.04	77.04	79.04
17.00	76.00	77.04	79.04
17.10	75.27	77.04	79.04
19.80	75.04	77.04	79.04
26.00	75.83	77.04	79.04
34.50	75.19	77.04	79.04
39.00	75.54	77.04	79.04
40.40	75.96	77.04	79.04
42.50	77.04	77.04	79.04
47.00	79.23	77.04	79.04
78.00	82.00	77.04	79.04
84.00	83.35	77.04	79.04
95.00	97.70	77.04	79.04
102.50	99.40	77.04	79.04

Wolf 7/3/01					
Dist. From left stake	Total depth	Total Elevation	Bankfull Elevation	2xBankfull Elevation	Notes
0	1.55	98.45	77.17	80.47	TBM-LB
16.9	22.83	77.17	77.17	80.47	BFL
17.5	24.6	75.4	77.17	80.47	LEW
18.8	26.13	73.87	77.17	80.47	T
25	24.61	75.39	77.17	80.47	
34.2	24.74	75.26	77.17	80.47	
41.3	24.54	75.46	77.17	80.47	REW
45.7	22.83	77.17	77.17	80.47	BFR
54.4	20.57	79.43	77.17	80.47	
68	19.89	80.11	77.17	80.47	
76.2	18.43	81.57	77.17	80.47	
84.6	16.97	83.03	77.17	80.47	
94.4	2.88	97.12	77.17	80.47	TOBR
97.3	2.33	97.67	77.17	80.47	
99.5	1.74	98.26	77.17	80.47	



6/26/03 wolf crossect-2					
Dist from left stake	Total Depth	Bankfull depth	Total elevation	Bankfull elevation	Bankfull elevation
0	1.86	0	98.14	76.4	80.33 tbm
14.3	23.6	0	76.4	76.4	80.33 bfl
15.1	24.42	0.82	75.58	76.4	80.33 wel
16.5	26.29	2.69	73.71	76.4	80.33
18	26.68	3.08	73.32	76.4	80.33
22	27.53	3.93	72.47	76.4	80.33 t
25	26.77	3.17	73.23	76.4	80.33
29	25.54	1.94	74.46	76.4	80.33
34	25.08	1.48	74.92	76.4	80.33
38.3	24.39	0.79	75.61	76.4	80.33 wer
40.1	23.6	0	76.4	76.4	80.33 bfr
61.4	20.85	0	79.15	76.4	80.33
64	21.2	0	78.8	76.4	80.33
80.3	17.82	0	82.18	76.4	80.33
92.2	8.26	0	91.74	76.4	80.33
95.6	2.96	0	97.04	76.4	80.33 tobr
97	2.43	0	97.57	76.4	80.33 end r

TOPipe=Top of pipe/bench mark

LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TPool=Top of pool

S-MAX=Max. depth sediment lens

LB=Left bank

RB=Right bank

TOB=Top of bank

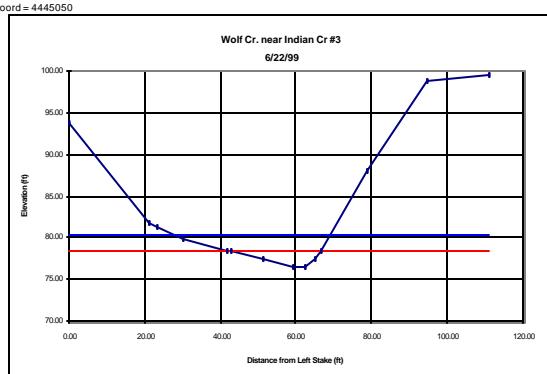
BF=Bankfull

T=Thalweg

Three Year SUMMARY		Mean	Max	Width:	Flood-	Entrench-
Year	Cross- section	Bankfull Width	Bankfull Depth	Bankfull Depth	prone	ment
1999	2	27.30	1.52	2.00	17.94	33.09
2001	2	28.80	1.74	3.30	16.50	79.50
2003	2	25.80	1.99	3.93	12.97	63.50

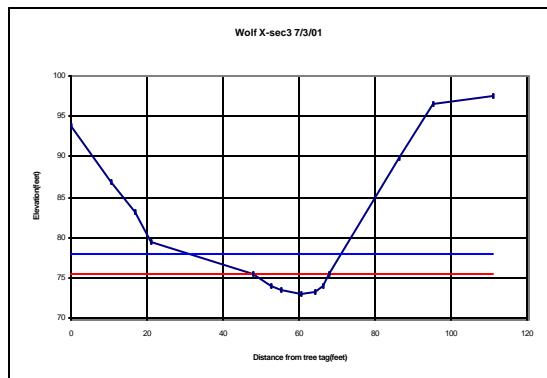
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UTM Y-coord = 4445050

### Wolf Cr X-sec 3

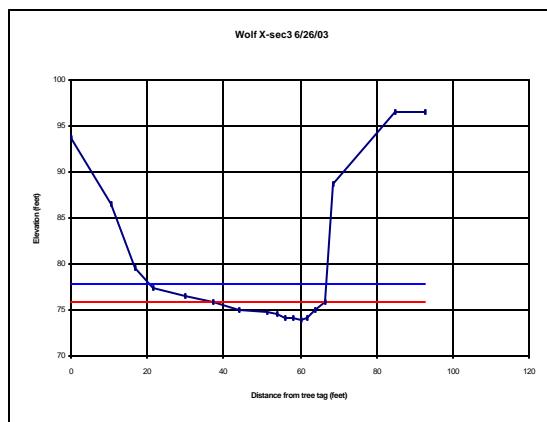


Left Stake	Dist. From Left Stake (ft)	Total Elevation	Bankfull Elevation	2x Bankfull Elevation
	0.00	93.75	78.39	80.34
	21.00	81.83	78.39	80.34
	23.00	81.22	78.39	80.34
	30.00	79.90	78.39	80.34
	42.00	78.44	78.39	80.34
	43.00	78.39	78.39	80.34
	51.30	77.53	78.39	80.34
	59.20	76.44	78.39	80.34
	62.50	76.45	78.39	80.34
	64.80	77.33	78.39	80.34
	66.50	78.39	78.39	80.34
	78.80	87.92	78.39	80.34
	94.50	98.90	78.39	80.34
	111.00	99.58	78.39	80.34

Blue Line=2x Bankfull Elev    Red Line=Mean Bankfull Elev    Dark Blue Line w/Markers=Basic Cross Section



Wolf 7/3/01					
left stake	Dist. From left stake	Total depth	Total Elevation	Bankfull Elevation	2xBankfull Elevation
0	6.19	93.81	75.44	77.91	TBM-LB
10.5	13.2	86.8	75.44	77.91	TOBL
16.8	16.82	83.18	75.44	77.91	
21.3	20.49	79.51	75.44	77.91	
48.05	24.56	75.44	75.44	77.91	BFL
52.75	26.07	73.93	75.44	77.91	LEW
55.1	26.45	73.55	75.44	77.91	
60.3	27.03	72.97	75.44	77.91	T
64.3	26.67	73.33	75.44	77.91	
66.2	26.07	73.93	75.44	77.91	REW
68.1	24.56	75.44	75.44	77.91	BFR
86.5	10.18	89.82	75.44	77.91	
95	3.48	96.52	75.44	77.91	TOBR
111	2.44	97.56	75.44	77.91	TBM-RB



6/26/03 wolf crossect-3					
left stake	Dist. from left stake	Total Depth	Total Bankfull depth	2x Bankfull elevation	Notes
0	6.28		93.72	75.86	77.83 tml
10.5	13.55	86.45	75.86	77.83	tobl
16.8	pp		75.86	77.83	
21.3	20.54		79.46	75.86	77.83
30.1	22.5		77.5	75.86	77.83
37.3	23.5		76.5	75.86	77.83
43.8	24.14	0	75.86	75.86	77.83 bfl
51.3	24.96	0.82	75.04	75.86	77.83 wel
54	25.23	1.09	74.77	75.86	77.83
56	25.45	1.31	74.55	75.86	77.83
58	25.79	1.65	74.21	75.86	77.83
60	25.93	1.79	74.07	75.86	77.83
62	26.11	1.97	73.89	75.86	77.83 t
64	25.91	1.77	74.09	75.86	77.83
66.7	24.96	0.82	75.04	75.86	77.83 wer
68.6	24.14	0	75.86	75.86	77.83 bfr
85	11.26		88.74	75.86	77.83
93	3.42		96.58	75.86	77.83 tobfr
105	3.54		96.46	75.86	77.83 endr

TOPipe=Top of pipe/bench mark

LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TOPool=Top of pool

S-MAX=Max. depth sediment lense

LB=Left bank

RB=Right bank

TOB=Top of bank

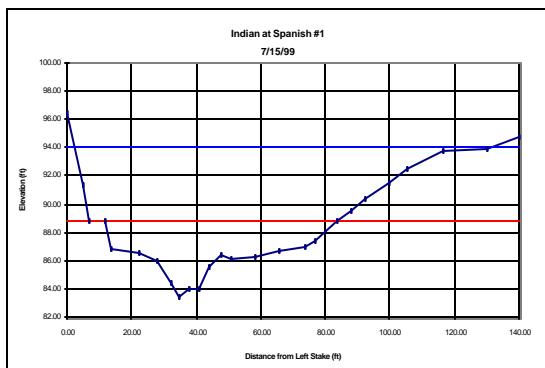
BF=Bankfull

T=Thalweg

all measurements in feet

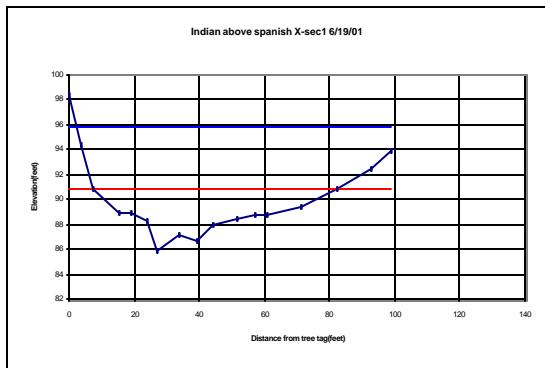
Three Year SUMMARY		Mean	Max	Width:	Flood-	Entrench-
Year	Cross- section	Cross- Bankfull	Bankfull	Depth	prone	ment
	Year	section	Width	Depth	Ratio	width
1999	3	23.50	1.45	1.95	16.18	41.35
2001	3	20.05	1.58	2.47	12.68	60.80
2003	3	24.80	1.25	1.97	19.89	45.90
						1.85

### Indian Cr abv Spanish X-sec 1

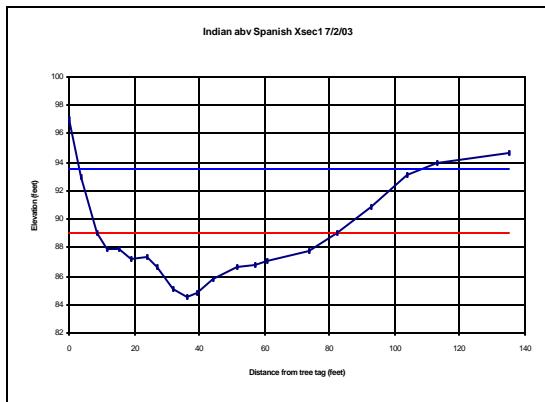


Blue Line=2x Bankfull Elev    Red Line=Mean Bankfull Elev    Dark Blue Line w/Markers=Basic Cross Section

Dist. From Left Stake	From Total	Bankfull	2x Bankfull
	Elevation	Elevation	Elevation
0.00	96.39	88.77	94.07
5.00	91.33	88.77	94.07
7.10	88.77	88.77	94.07
11.60	88.77	88.77	94.07
13.50	86.79	88.77	94.07
22.50	86.53	88.77	94.07
28.00	85.93	88.77	94.07
32.30	84.48	88.77	94.07
34.70	83.47	88.77	94.07
38.00	83.93	88.77	94.07
40.90	83.92	88.77	94.07
44.10	85.60	88.77	94.07
47.60	86.46	88.77	94.07
51.00	86.12	88.77	94.07
58.20	86.23	88.77	94.07
65.50	86.69	88.77	94.07
73.50	86.89	88.77	94.07
77.00	87.45	88.77	94.07
83.80	88.77	88.77	94.07
88.20	89.51	88.77	94.07
92.50	90.36	88.77	94.07
100.00	91.53	88.77	94.07
105.20	92.43	88.77	94.07
116.60	93.79	88.77	94.07
130.20	93.96	88.77	94.07
140.00	94.82	88.77	94.07



Dist. From left stake	Total depth	Bankfull Elevation	2x Bankfull Notes
0	1.55	98.45	90.89 95.88 TBM-LB
3.5	5.65	94.35	90.89 95.88
7.6	9.11	90.89	90.89 95.88 BFL
15.6	11.02	88.98	90.89 95.88
19.2	11.11	88.89	90.89 95.88 LEW
23.8	11.79	88.21	90.89 95.88
27	14.11	85.9	90.89 95.88 T
33.5	12.93	87.07	90.89 95.88
39.35	13.36	86.64	90.89 95.88
44.2	12.1	87.9	90.89 95.88
51.8	11.65	88.35	90.89 95.88
57.1	11.26	88.74	90.89 95.88
60.5	11.18	88.82	90.89 95.88 REW
71.25	10.68	89.32	90.89 95.88
82.5	9.11	90.89	90.89 95.88 BFR
92.5	7.49	92.51	90.89 95.88
99.1	6.14	93.86	90.89 95.88 TBM-RB



Dist. from left stake	Total Depth	Bankfull depth	Total Bankfull elevation	Bankfull elevation	2x Bankfull Notes
0	2.94		97.06	89.06	93.57 tbml
3.5	7.1		92.9	89.06	93.57
8.5	10.94	0	89.06	89.06	93.57 bfl
11.7	12.09	1.15	87.91	89.06	93.57 wel
15.6	12.16	1.22	87.84	89.06	93.57
19.2	12.81	1.87	87.19	89.06	93.57
23.8	12.68	1.74	87.32	89.06	93.57
27	13.38	2.44	86.62	89.06	93.57
32	14.88	3.94	85.12	89.06	93.57
36	15.45	4.51	84.55	89.06	93.57 t
39.3	15.2	4.26	84.8	89.06	93.57
44.2	14.16	3.22	85.84	89.06	93.57
51.8	13.33	2.39	86.67	89.06	93.57
57.1	13.26	2.32	86.74	89.06	93.57
60.5	13	2.06	87	89.06	93.57
73.4	12.27	1.33	87.73	89.06	93.57 wer
82.5	10.94	0	89.06	89.06	93.57 bfr
92.5	9.12		90.88	89.06	93.57
104	6.86		93.14	89.06	93.57 tobr
113	6.03		93.97	89.06	93.57
135	5.4		94.6	89.06	93.57 endr

TOPipe=Top of pipe/bench mark

LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TPool=Top of pool

S-MAX=Max. depth sediment lense

LB=Left bank

RB=Right bank

TOP=Top of bank

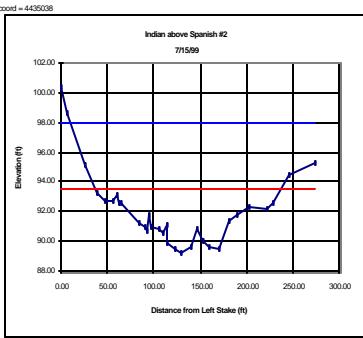
BF=Bankfull

T=Thalweg

Three Year SUMMARY		Mean	Max	Width:	Flood-prone	Entrenchment
Year	Cross-section	Bankfull Width	Bankfull Depth	Depth Ratio	width	Ratio
1999	1	76.70	2.82	5.30	27.21	129.16 1.68
2001	1	74.90	2.58	4.99	29.03	80.40 1.07
2003	1	74.00	2.32	4.51	31.90	103.40 1.40

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UTM Y-coord = 4436028

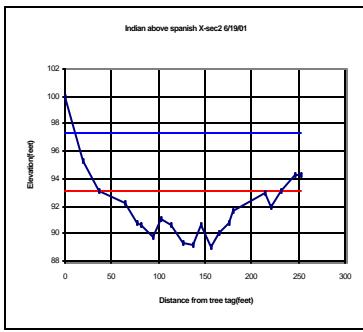
### Indian Cr abv Spanish X



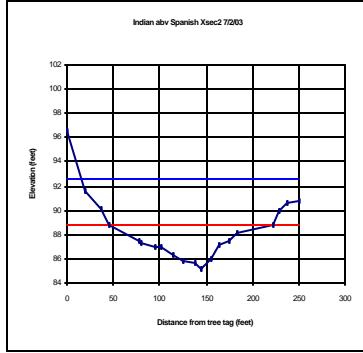
Blue Line=2x Bankfull Elev   Red Line=Mean Bankfull Elev   Dark Blue Line w/Markers=Basic Cross Section

Dist. From Total Bankfull 2xBankfull  
Left Stake Elevation Elevation Elevation

0.00	100.32	93.525	97.9
7.00	98.66	93.525	97.9
25.00	95.20	93.525	97.9
38.60	93.30	93.525	97.9
47.80	92.72	93.525	97.9
56.00	92.73	93.525	97.9
61.00	93.18	93.525	97.9
63.00	92.54	93.525	97.9
64.00	92.61	93.525	97.9
84.00	91.21	93.525	97.9
89.90	90.90	93.525	97.9
93.20	90.65	93.525	97.9
94.70	91.73	93.525	97.9
96.70	91.00	93.525	97.9
106.00	90.77	93.525	97.9
110.90	90.55	93.525	97.9
114.40	91.13	93.525	97.9
115.40	89.87	93.525	97.9
122.20	89.50	93.53	97.9
129.00	89.15	93.525	97.9
140.00	89.60	93.525	97.9
147.00	90.84	93.525	97.9
151.60	90.02	93.525	97.9
160.00	89.56	93.525	97.9
170.00	89.53	93.525	97.9
180.50	91.41	93.525	97.9
190.20	91.73	93.525	97.9
203.30	92.36	93.525	97.9
222.20	92.12	93.525	97.9
229.20	92.61	93.525	97.9
246.00	94.44	93.525	97.9
275.00	95.21	93.525	97.9



Dist. From Total	Total	Bankfull	2xBankfull	Notes
left stake depth	Elevation	Elevation	Elevation	
1	0.02	99.98	93.15	97.31 TBM-LB
19.65	4.72	95.26	93.15	97.31 TOB-LB
36.8	6.8	93.15	93.15	97.31 BFL
65	7.8	92.17	93.15	97.31
76.3	9.28	90.72	93.15	97.31
80.9	9.37	90.63	93.15	97.31 LEW
94.6	10.22	88.78	93.15	97.31
102.15	8.97	91.03	93.15	97.31
114.5	9.42	90.98	93.15	97.31
126.2	10.71	89.29	93.15	97.31
137.6	10.79	89.21	93.15	97.31
145.3	9.4	90.8	93.15	97.31
155.5	11.04	88.99	93.15	97.31 T
164.9	10.03	89.97	93.15	97.31
175.13	9.22	90.78	93.15	97.31 REW
179.75	8.3	91.7	93.15	97.31
213.8	6.98	93.02	93.15	97.31
220.3	8.07	91.93	93.15	97.31
231.75	6.68	93.15	93.15	97.31 BFR
246	5.79	94.21	93.15	97.31 TOB-RB
253.7	5.8	94.2	93.15	97.31 TBM-RB



Dist. from Total	Total	Bankfull	2x	
left stake Depth	Depth	depth	Bankfull	Notes
0	3.42		96.58	88.86 92.62 tml
19.65	8.4		91.6	88.86 92.62 tml
36.8	9.92		90.08	88.86 92.62
44.3	11.14	0	88.86	88.86 92.62 bfl
76.5	12.45	1.31	87.55	88.86 92.62 wel
80.9	12.68	1.54	87.32	88.86 92.62
94.6	13.1	1.96	86.9	88.86 92.62
102.5	13.42	1.89	86.97	88.86 92.62
114.5	13.73	2.59	86.27	88.86 92.62
126	14.23	3.09	85.77	88.86 92.62
137.5	14.31	3.17	85.69	88.86 92.62
145	14.9	3.76	85.1	88.86 92.62 t
155.5	14.02	2.88	85.98	88.86 92.62
164.9	12.87	1.73	87.13	88.86 92.62
174.4	12.45	1.31	87.55	88.86 92.62 wer
183	11.87	0.73	88.13	88.86 92.62
223	11.14	0	88.86	88.86 92.62 bfl
228	10.1		89.9	88.86 92.62
237	9.34		90.66	88.86 92.62
250	9.22		90.78	88.86 92.62 tobrnd

TOPipe=Top of pipebench mark

LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Tuning point

TOPool=Top of pool

S-MAX=Max. depth sediment lens

LB=Left bank

RB=Right bank

TOB=Top of bank

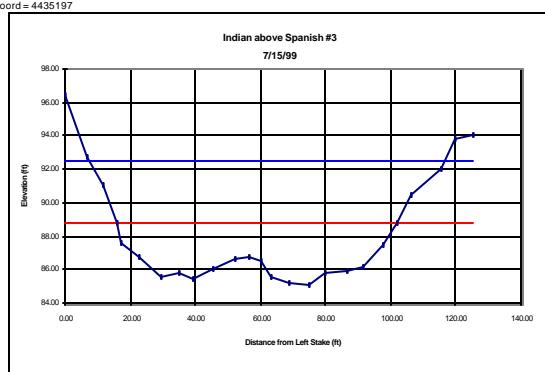
BF=Bankfull

T=Thalweg

Three Year SUMMAR	Mean	Max	Width:	Flood-	Entrench-
Year	sector	Width	Depth	Bankfull	Bankful
1999	2	#####	1.93	3.46	94.37 #####
2001	2	#####	2.30	4.16	84.30 #####
2003	2	#####	2.00	3.76	89.49 #####
					1.51

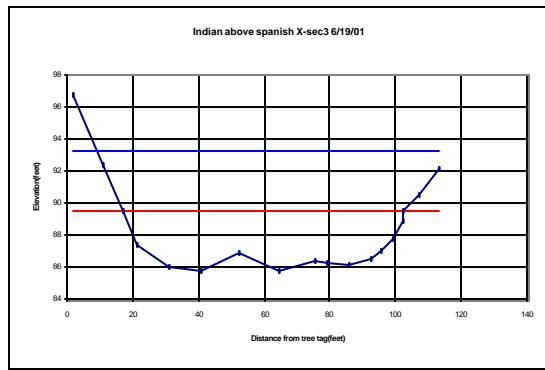
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### Indian Cr abv Spanish X-sec 3

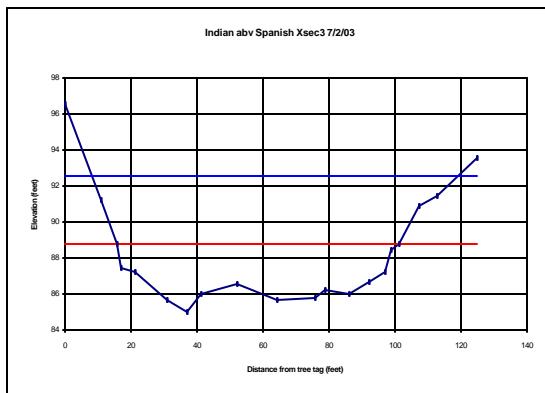


Blue Line=2x Bankfull Elev    Red Line=Mean Bankfull Elev    Dark Blue Line w/Markers=Basic Cross Section

Dist. From Left Stake	Total depth	Bankfull elevation	2xBankfull elevation
0.00	96.45	88.79	92.53
7.00	92.73	88.79	92.53
11.90	91.05	88.79	92.53
16.10	88.79	88.79	92.53
16.90	87.59	88.79	92.53
22.70	86.79	88.79	92.53
29.60	85.59	88.79	92.53
34.90	85.80	88.79	92.53
39.50	85.44	88.79	92.53
45.50	86.00	88.79	92.53
52.00	86.60	88.79	92.53
56.20	86.76	88.79	92.53
60.00	86.55	88.79	92.53
63.00	85.57	88.79	92.53
68.70	85.15	88.79	92.53
74.80	85.05	88.79	92.53
80.00	85.74	88.79	92.53
86.50	85.86	88.79	92.53
91.50	86.19	88.79	92.53
97.80	87.47	88.79	92.53
102.10	88.79	88.79	92.53
106.20	90.51	88.79	92.53
115.50	91.96	88.79	92.53
119.50	93.83	88.79	92.53
125.00	94.09	88.79	92.53



Dist. From left stake	Total depth	Total elevation	Bankfull elevation	2xBankfull elevation	Notes
2	3.2	96.8	89.46	93.21	TBM-LB
10.7	7.65	92.35	89.46	93.21	TOB-LB
17.2	10.54	89.46	89.46	93.21	BFL
21.3	12.59	87.41	89.46	93.21	LEW
31.2	13.99	86.01	89.46	93.21	
41	14.28	85.72	89.46	93.21	T
52.2	13.14	86.86	89.46	93.21	
64.4	14.21	85.79	89.46	93.21	
75.6	13.64	86.36	89.46	93.21	
79	13.73	86.27	89.46	93.21	
85.9	13.91	86.09	89.46	93.21	
92.3	13.44	86.56	89.46	93.21	
95.8	13.01	86.99	89.46	93.21	REW
99	12.22	87.78	89.46	93.21	
102	11.09	88.91	89.46	93.21	
102.3	10.54	89.46	89.46	93.21	BFR
107	9.46	90.54	89.46	93.21	
113	7.92	92.08	89.46	93.21	



Dist from left stake	Total Depth	Bankfull depth	Total elevation	Bankfull elevation	Bankfull Notes
0	3.4		96.6	88.77	92.52 ttml
10.7	8.79		91.21	88.77	92.52 tobl
15.5	11.23	0	88.77	88.77	92.52 bfl
17	12.54	1.31	87.46	88.77	92.52 wel
21.3	12.79	1.56	87.21	88.77	92.52
31.2	14.31	3.08	85.69	88.77	92.52
36.8	14.98	3.75	85.02	88.77	92.52 t
41	14.04	2.81	85.96	88.77	92.52
52.2	13.48	2.25	86.52	88.77	92.52
64.4	14.28	3.05	85.72	88.77	92.52
75.6	14.23	3	85.77	88.77	92.52
79	13.76	2.53	86.24	88.77	92.52
85.9	14	2.77	86	88.77	92.52
92.3	13.38	2.15	86.62	88.77	92.52
96.9	12.73	1.5	87.27	88.77	92.52 wer
99	11.6	0.37	88.4	88.77	92.52
101.5	11.23	0	88.77	88.77	92.52 bfr
107	9.08		90.92	88.77	92.52
113	8.53		91.47	88.77	92.52
125	6.45		93.55	88.77	92.52 endr

TOPipe=Top of pipe/bench mark

LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PTC=Pool tail crest

TP=Turning point

TOPool=Top of pool

S-MAX=Max. depth sediment lens

LB=Left bank

RB=Right bank

TOB=Top of bank

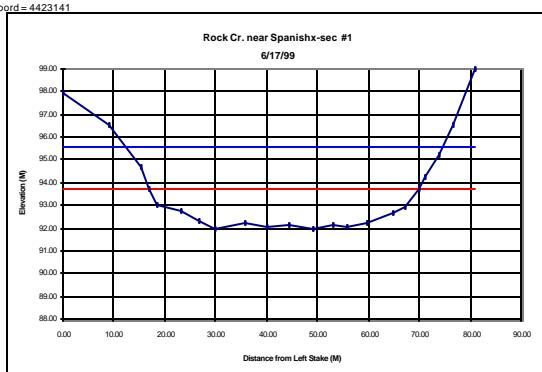
BF=Bankfull

T=Thalweg

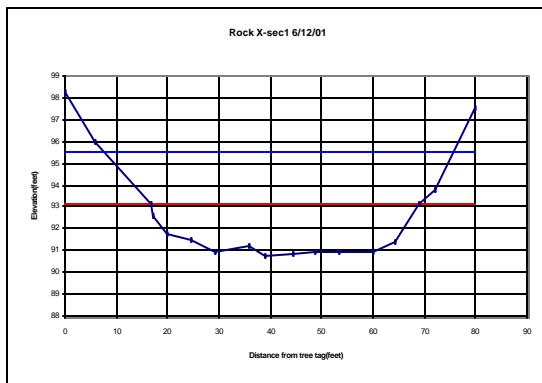
Year	Cross-Section		Bankfull Depth	Bankfull Depth	Depth Ratio	Flood-prone width	Entrenchment Ratio
	Year	Width	Depth	Depth			
1999	3	86.00	2.66	3.74	32.38	109.14	1.27
2001	3	83.10	2.52	3.75	32.97	104.30	1.25
2003	3	86.00	2.15	3.75	39.96	108.00	1.26

UTM X-coord = 669002  
UTM Y-coord = 4423141

### Rock Cr (Spanish Trib) X-sec 1

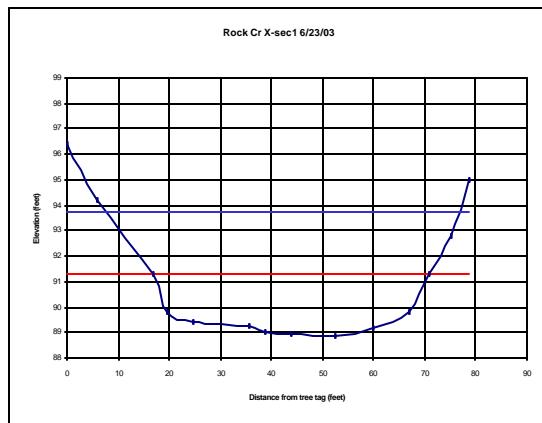


Blue Line=2x Bankfull Elev    Red Line=Mean Bankfull Elev    Dark Blue Line w/Markers=Basic Cross Section



Rock 6/12/01  
Dist. From Total Total Bankfull 2xBankfull Notes  
left stake depth Elevation Elevation Elevation

left stake	depth	Elevation	Elevation	Elevation	Notes
0	1.7	98.3	93.12	95.48	TBM-LB
6	3.99	96.01	93.12	95.48	
16.9	6.88	93.12	93.12	95.48	BFL
17.3	7.42	92.58	93.12	95.48	
19.7	8.24	91.76	93.12	95.48	
24.7	8.55	91.45	93.12	95.48	LEW
29.3	9.07	90.93	93.12	95.48	
35.8	8.79	91.21	93.12	95.48	
38.9	9.24	90.76	93.12	95.48	T
44.3	9.16	90.84	93.12	95.48	
48.8	9.09	90.91	93.12	95.48	
53.4	9.06	90.94	93.12	95.48	
60	9.03	90.97	93.12	95.48	
64.4	8.6	91.4	93.12	95.48	REW
69	6.88	93.12	93.12	95.48	BFR
72	6.2	93.8	93.12	95.48	
80	2.43	97.57	93.12	95.48	End



6/23/03 rock acw spanish crosssect-1						
Dist from left stake	Total Depth	2x		Bankfull elevation	Bankfull elevation	Notes
		Bankfull depth	Total elevation			
0	3.59		96.41	91.3	93.7	tbrn
6	5.83		94.17	91.3	93.7	
16.9	8.7	0	91.3	91.3	93.7	bfl
19.7	10.17	1.47	89.83	91.3	93.7	wel
24.7	10.59	1.89	89.41	91.3	93.7	
35.8	10.72	2.02	89.28	91.3	93.7	
38.9	11	2.3	89	91.3	93.7	
44	11.09	2.39	88.91	91.3	93.7	
52.6	11.1	2.4	88.9	91.3	93.7	t
60	10.82	2.12	89.18	91.3	93.7	
67	10.2	1.5	89.8	91.3	93.7	wer
70.9	8.7	0	91.3	91.3	93.7	bfr
75	7.21		92.79	91.3	93.7	
78.8	5.02		94.98	91.3	93.7	end

TOPipe=Top of pipe/bench mark

LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TOPool=Top of pool

S-MAX=Max depth sediment lens

LB=Left bank

RB=Right bank

TOB=Top of bank

BF=Bankfull

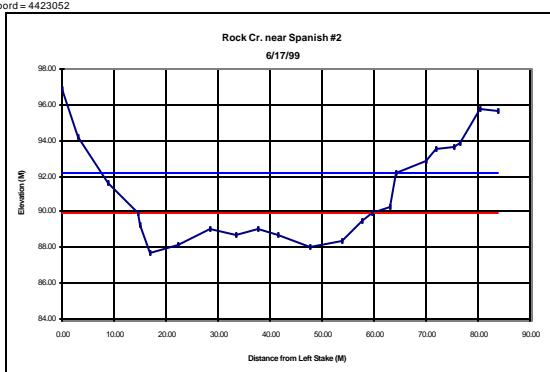
T=Thalweg

all measurements in feet

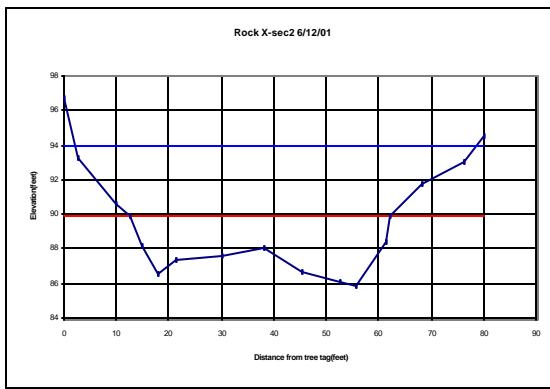
Three Year SUMMARY		Mean	Max	Width:	Flood-	Entrench-
Cross-	Bankfull	Bankfull	Bankfull	Depth	prone	ment
Year	section	Width	Depth	Depth	Ratio	width
1999	1	52.80	1.40	1.80	37.74	62.31
2001	1	52.10	1.71	2.36	30.46	67.80
2003	1	54.00	1.79	2.40	30.21	66.60
					1.23	

UTM X-coord = 668844  
UTM Y-coord = 4423052

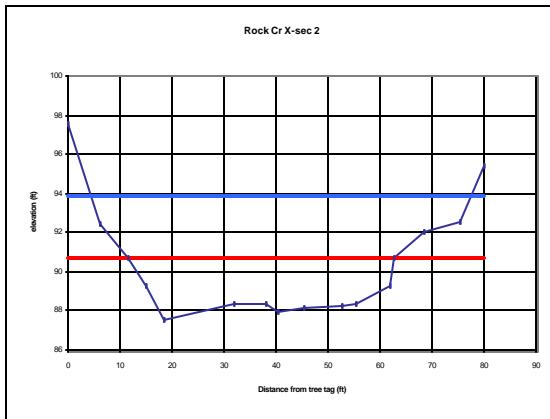
### Rock Cr (Spanish trib) X-section 2



Blue Line=2x Bankfull Elev    Red Line=Mean Bankfull Elev    Dark Blue Line w/Markers=Basic Cross Section



Rock 6/12/01						
Dist. From left stake	Total depth	Total Elevation	Bankfull Elevation	2x Bankfull Elevation	Notes	
0	3.25	96.75	89.89	93.93	TBM-LB	
2.8	6.77	93.23	89.89	93.93		
9.8	9.4	90.6	89.89	93.93		
12.7	10.11	89.89	89.89	93.93	BFL	
14.8	11.84	88.16	89.89	93.93	LEV	
17.85	13.4	86.6	89.89	93.93		
21.4	12.65	87.35	89.89	93.93		
29.95	12.42	87.58	89.89	93.93		
38	11.94	88.06	89.89	93.93		
45.2	13.34	86.66	89.89	93.93		
52.7	13.95	86.05	89.89	93.93		
55.5	14.15	85.85	89.89	93.93	T	
61.5	11.59	88.41	89.89	93.93	REW	
62.25	10.11	89.89	89.89	93.93	BFR	
68.4	8.24	91.76	89.89	93.93	TOBR	
76.1	6.92	93.08	89.89	93.93		
80	5.45	94.55	89.89	93.93	TBM-RB	



6/23/03 rock acw spanish crossect-2						
Dist from left stake	Total Depth	Total Bankfull depth	Total Bankfull elevation	2x Bankfull elevation	Bankfull elevation	Notes
0	2.42		97.58	90.72	93.89	tbm
6.1	7.58		92.42	90.72	93.89	
11.4	9.28	0	90.72	90.72	93.89	bfl
15	10.74	1.46	89.26	90.72	93.89	wel
18.5	12.45	3.17	87.55	90.72	93.89	t
32	11.67	2.39	88.33	90.72	93.89	
38	11.6	2.32	88.4	90.72	93.89	
40.5	12.01	2.73	87.99	90.72	93.89	
45.2	11.85	2.57	88.15	90.72	93.89	
52.7	11.75	2.47	88.25	90.72	93.89	
55.5	11.63	2.35	88.37	90.72	93.89	
62	10.78	1.5	89.22	90.72	93.89	wer
62.5	9.28	0	90.72	90.72	93.89	bfr
68.5	7.98		92.02	90.72	93.89	
75.5	7.5		92.5	90.72	93.89	tobr
80	4.6		95.4	90.72	93.89	end

TOPipe=Top of pipe/bench mark

LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TOPool=Top of pool

S-MAX=Max. depth sediment lense

LB=Left bank

RB=Right bank

TOB=Top of bank

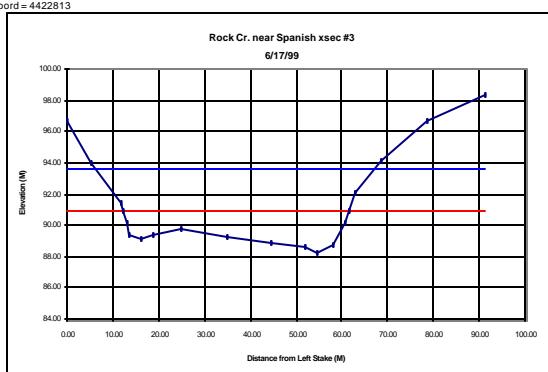
BF=Bankfull

T=Thalweg

Three Year SUMMARY		Mean	Max	Width:	Flood-	Entrench-
Cross-	Bankfull	Bankfull	Bankfull	Depth	prone	ment
Year	section	Width	Depth	Depth	Ratio	width
1999	2	45.00	1.29	2.21	34.82	56.97
2001	2	49.55	2.43	4.04	20.39	75.40
2003	2	51.10	2.10	3.17	24.38	74.00
					1.27	1.52
					1.45	

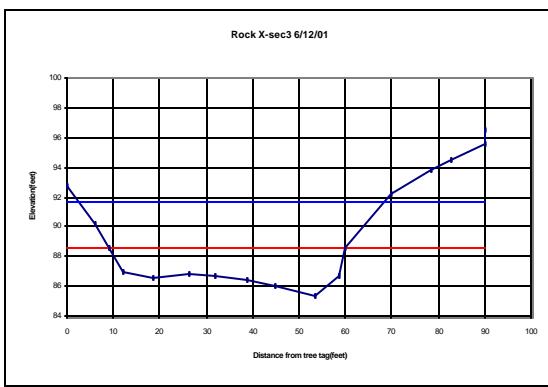
UTM X-coord = 668631  
UTM Y-coord = 4422813

### Rock Cr (Spanish trib) X-sec 3

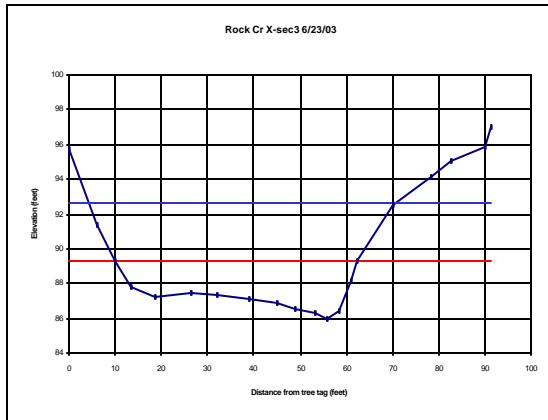


Dist. From Left Stake	Total depth	Bankfull depth	2x Bankfull depth	Elevation	Elevation
0.00	96.65	90.91207	93.53675		
5.15	94.03	90.91207	93.53675		
12.00	91.40	90.91207	93.53675		
12.10	90.91	90.91207	93.53675		
13.00	90.12	90.91207	93.53675		
13.60	89.44	90.91207	93.53675		
16.00	89.14	90.91207	93.53675		
18.80	89.34	90.91207	93.53675		
25.00	89.80	90.91207	93.53675		
35.00	89.30	90.91207	93.53675		
44.70	88.81	90.91207	93.53675		
52.00	88.58	90.91207	93.53675		
54.80	88.29	90.91207	93.53675		
58.00	88.78	90.91207	93.53675		
60.70	90.12	90.91207	93.53675		
61.45	90.91	90.91207	93.53675		
62.80	92.06	90.91207	93.53675		
68.60	94.13	90.91207	93.53675		
78.60	96.65	90.91	93.53675		
91.20	98.36	90.91207	93.53675		

Blue Line=2x Bankfull Elev      Red Line=Mean Bankfull Elev      Dark Blue Line w/Markers=Basic Cross Section



Rock	6/12/01	Notes					
Dist. From left stake	Total depth	Total Elevation	Bankfull depth	Bankfull Elevation	2x Bankfull depth	2x Bankfull Elevation	
0	7.32	92.68	88.54	91.7	TBM-LB		
6.1	9.85	90.15	88.54	91.7	TOBL		
9.2	11.46	88.54	88.54	91.7	BFL		
12	13.03	86.97	88.54	91.7			
18.5	13.42	86.58	88.54	91.7			
26.4	13.12	86.88	88.54	91.7			
32	13.32	86.68	88.54	91.7	LEW		
39	13.63	86.37	88.54	91.7			
45	13.95	86.05	88.54	91.7			
53.3	14.62	85.38	88.54	91.7	T		
58.6	13.32	86.68	88.54	91.7	REW		
59.8	11.46	88.54	88.54	91.7	BFR		
70	7.85	92.15	88.54	91.7	TOBR		
78.4	6.15	93.85	88.54	91.7			
82.7	5.5	94.5	88.54	91.7			
89.9	4.5	95.5	88.54	91.7			
89.9	3.56	96.44	88.54	91.7	TBM-RB		



6/23/03 rock acw spanish crossect-3							
Dist from left stake	Total depth	Bankfull depth	Total elevation	Bankfull elevation	2x Bankfull depth	2x Bankfull elevation	Notes
0	4.28		95.72	89.29	92.62	tbm	
6.1	8.61		91.39	89.29	92.62		
10	10.71	0	89.29	89.29	92.62	bfl	
13.5	12.18	1.47	87.82	89.29	92.62	wei	
18.5	12.72	2.01	87.28	89.29	92.62		
26.4	12.55	1.84	87.45	89.29	92.62		
32	12.63	1.92	87.37	89.29	92.62		
39	12.89	2.18	87.11	89.29	92.62		
45	13.15	2.44	86.85	89.29	92.62		
49	13.44	2.73	86.56	89.29	92.62		
53.3	13.75	3.04	86.25	89.29	92.62		
55.9	14.04	3.33	85.96	89.29	92.62	t	
58.6	13.56	2.85	86.44	89.29	92.62		
61	11.82	1.11	88.18	89.29	92.62	wei	
62.5	10.71	0	89.29	89.29	92.62	bfr	
70	7.45		92.55	89.29	92.62		
78.4	5.87		94.13	89.29	92.62		
82.7	5		95	89.29	92.62		
89.9	4.17		95.83	89.29	92.62		
91.4	2.95		97.05	89.29	92.62	tbr	

TOPipe=Top of pipe/bench mark

LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TOPool=Top of pool

S-MAX=Max depth sediment lens

LB=Left bank

RB=Right bank

TOB=Top of bank

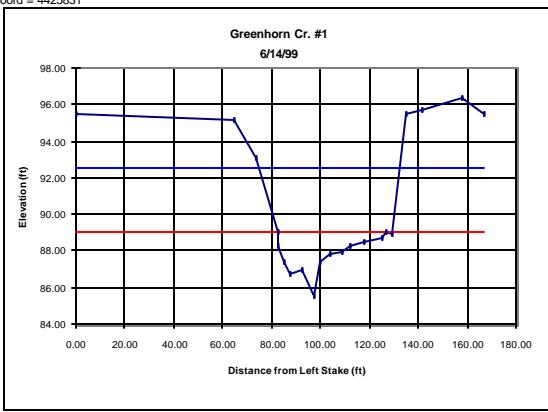
BF=Bankfull

T=Thalweg

Three Year SUMMARY							
Year	Cross- section	Mean Width	Max Depth	Bankfull Depth	Bankfull Ratio	Flood-prone width	Entrenchment Ratio
1999	3	49.35	1.66	2.62	29.70	60.51	1.23
2001	3	50.60	1.90	3.16	26.60	65.80	1.30
2003	3	52.50	2.08	3.33	25.28	66.80	1.27

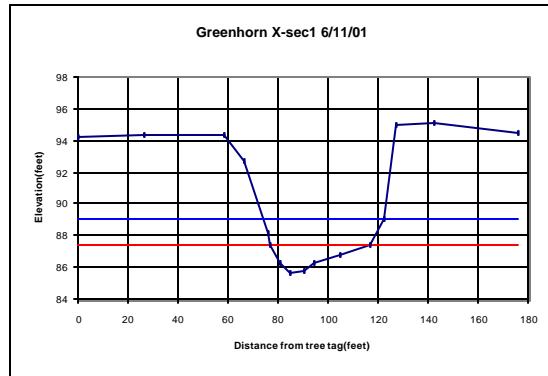
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UTM Y-coord = 4425831

### Greenhorn Cr X-sec 1



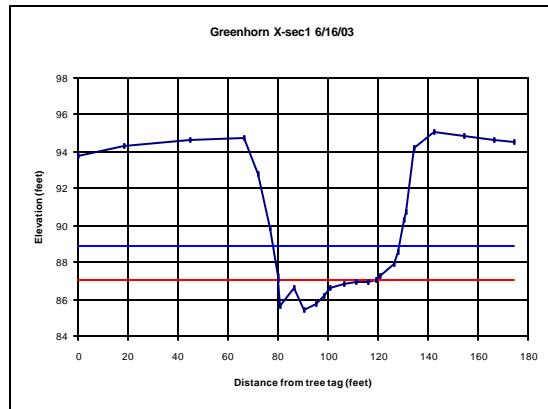
Dist. Fr Total	Bankfull	2xBankfull
Left Stake	Elevation	Elevation
0.00	95.54	89.00919
65.00	95.21	89.00919
73.30	93.08	89.00919
83.00	89.01	89.00919
83.00	88.22	89.00919
85.30	87.37	89.00919
87.20	86.68	89.00919
92.20	86.94	89.00919
97.00	85.50	89.00919
100.00	87.34	89.00919
103.60	87.86	89.00919
109.00	87.93	89.00919
112.40	88.25	89.00919
117.90	88.45	89.00919
125.10	88.68	89.00919
126.90	89.01	89.00919
129.60	88.91	89.00919
134.60	95.47	89.00919
141.40	95.70	89.01
158.20	96.36	89.00919
166.70	95.51	89.00919

Blue Line=2x Bankfull Elev Red Line=Mean Bankfull Elev Dark Blue Line w/Markers=Basic Cross Section



June 11, 2001 Cross-section measurement

Dist. Fr Total	Total	Bankfull	2xBankfull	Notes
left stake	Depth	Elevation	Elevation	Elevation
0	5.8	94.2	87.36	89.02 TBM
26	5.68	94.32	87.36	89.02
58	5.63	94.37	87.36	89.02 TOBL
66.5	7.27	92.73	87.36	89.02
75.6	11.88	88.12	87.36	89.02
76.7	12.64	87.36	87.36	89.02 BFL
80.5	13.75	86.25	87.36	89.02 WEL
85	14.3	85.7	87.36	89.02 T
90.5	14.22	85.78	87.36	89.02
94.5	13.7	86.3	87.36	89.02 WER
105	13.2	86.8	87.36	89.02
116.4	12.64	87.36	87.36	89.02 BFR
122.7	10.93	89.07	87.36	89.02
127	5.08	94.92	87.36	89.02 TOBR
142	4.85	95.15	87.36	89.02
176	5.57	94.43	87.36	89.02 END



6/16/03 green hon Xsect-1

Dist from left stake	Total depth	Bankfull depth	Total elevation	Bankfull elevation	bankfull elevation	Notes
0	6.2		93.8	87.03	88.85	tbm lb
18	5.67		94.33	87.03	88.85	
45	5.35		94.65	87.03	88.85	
66	5.29		94.71	87.03	88.85	tobl
72	7.19		92.81	87.03	88.85	
76.5	10.18		89.82	87.03	88.85	
80	12.72	0	87.28	87.03	88.85	bfl
80.1	12.97	0.25	87.03	87.03	88.85	wel
80.62	14.33	1.61	85.67	87.03	88.85	
86.4	13.44	0.72	86.56	87.03	88.85	
90.7	14.54	1.82	85.46	87.03	88.85	t
95	14.24	1.52	85.76	87.03	88.85	
98	13.78	1.06	86.22	87.03	88.85	
101.15	13.41	0.69	86.59	87.03	88.85	
106.35	13.16	0.44	86.84	87.03	88.85	
111.1	13.03	0.31	86.97	87.03	88.85	
115.8	13.05	0.33	86.95	87.03	88.85	
119.2	12.94	0.22	87.06	87.03	88.85	wer
120.6	12.72	0	87.28	87.03	88.85	bfr
126	12.13		87.87	87.03	88.85	
127.8	11.46		88.54	87.03	88.85	
130.2	9.73		90.27	87.03	88.85	
131.05	9.22		90.78	87.03	88.85	
134.2	5.78		94.22	87.03	88.85	tobr
142	4.95		95.05	87.03	88.85	
154.5	5.14		94.86	87.03	88.85	
166	5.35		94.65	87.03	88.85	
174	5.5		94.5	87.03	88.85	

all measurements in feet      **Three Year SUMMARY**      Mean      Max      Width:      Flood-      Entrench-

TOPipe=Top of pipe/bench mark      Cross- Bankfull Bankfull Bankfull Depth prone ment

LEW=Left edge of water      Year section Width Depth Depth Ratio width Ratio

REW=Right edge of water      1999 1 43.90 1.44 3.51 30.39 57.72 1.31

MPD=Maximum pool depth      2001 1 40.30 1.00 1.66 40.50 48.80 1.21

TBM=Temporary bench mark      2003 1 39.10 0.75 1.82 52.13 50.70 1.30

PCT=Pool tail crest

TP=Turning point

TOPool=Top of pool

S-MAX=Max depth sediment lens

LB=Left bank

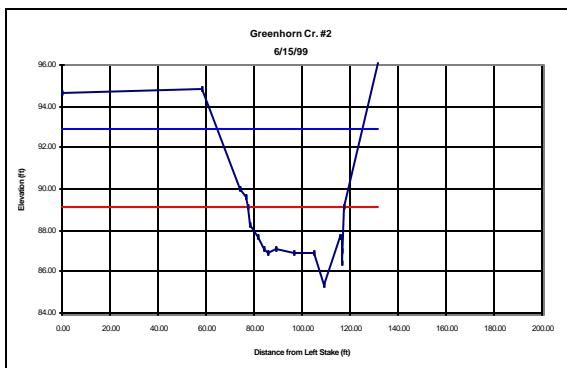
RB=Right bank

TOB=Top of bank

BF=Bankfull

T=Thalweg

### Greenhorn Cr X-sec 2

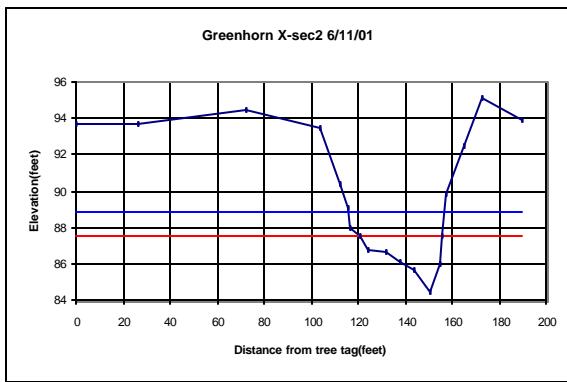


Dist. From Left Stake	Total Depth	Bankfull Depth	2x Bankfull Depth	Notes
0.00	94.62	89.14042	92.88058	
58.00	94.82	89.14042	92.88058	
74.40	89.98	89.14042	92.88058	
76.50	89.63	89.14042	92.88058	
77.70	89.14	89.14042	92.88058	
78.20	88.28	89.14042	92.88058	
81.80	87.63	89.14042	92.88058	
84.00	87.14	89.14042	92.88058	
85.80	86.94	89.14042	92.88058	
88.90	87.11	89.14042	92.88058	
97.00	86.91	89.14042	92.88058	
104.80	86.88	89.14042	92.88058	
109.20	85.40	89.14042	92.88058	
116.00	87.66	89.14042	92.88058	
116.40	87.70	89.14042	92.88058	
116.80	87.04	89.14042	92.88058	
117.00	86.38	89.14042	92.88058	
117.70	89.14	89.14042	92.88058	
132.00	96.10	89.14	92.88058	
145.00	99.80	89.14042	92.88058	

Blue Line=2x Bankfull Elev

Red Line=Mean Bankfull Elev

Dark Blue Line w/Markers=Basic Cross Section



June 11, 2001 Cross-Section Measurements
Dist. From Left Stake
Total Depth
Bankfull Elevation
2x Bankfull Elevation
Notes
0
6.35
93.65
87.48
88.86
TBM
26
6.36
93.64
87.48
88.86
72
5.57
94.43
87.48
88.86
104
6.52
93.48
87.48
88.86
TOBL
112
9.64
90.36
87.48
88.86
115.6
10.9
89.1
87.48
88.86
117
12.01
87.99
87.48
88.86
120.5
12.52
87.48
87.48
88.86
BFL
124.1
13.28
86.72
87.48
88.86
131.6
13.39
86.61
87.48
88.86
138.2
13.89
86.11
87.48
88.86
WEL
143.9
14.35
85.65
87.48
88.86
150.3
15.61
84.39
87.48
88.86
T
154.6
14.04
85.96
87.48
88.86
WER
155.9
12.52
87.48
87.48
88.86
BFR
157.6
10.21
89.79
87.48
88.86
165.3
7.55
92.45
87.48
88.86
172.4
4.84
95.16
87.48
88.86
TOBR
190
6.12
93.88
87.48
88.86
END



6/16/03 greenhorn x-sect2
2x
Dist from left stake
Total Depth
Bankfull depth
Total elevation
Bankfull elevation
Bankfull Notes
0
5.61
94.39
89.3
92.56
tbm
16
5.45
94.55
89.3
92.56
28
5.38
94.62
89.3
92.56
37.5
5.23
94.77
89.3
92.56
42.6
5.65
94.35
89.3
92.56
56.3
5.15
94.85
89.3
92.56
68.8
4.75
95.25
89.3
92.56
89.9
4.93
95.07
89.3
92.56
tobl
100
8.74
91.26
89.3
92.56
102.5
9.54
90.46
89.3
92.56
105.9
10.7
89.3
89.3
92.56
bfl
106.3
11.42
88.58
89.3
92.56
113
12.41
87.59
89.3
92.56
114
12.68
87.32
89.3
92.56
wel
120.2
12.63
87.37
89.3
92.56
123.2
13.09
86.91
89.3
92.56
126.1
13.51
86.49
89.3
92.56
128.9
13.47
86.53
89.3
92.56
133.1
13.54
86.46
89.3
92.56
136.1
13.96
86.04
89.3
92.56
t
138.95
13.65
86.35
89.3
92.56
143.8
12.61
0
87.39
89.3
92.56
wer
144.8
10.7
-0.63
89.3
89.3
92.56
bfr
145.7
10.07
89.93
89.3
92.56
149.3
8.69
91.31
89.3
92.56
153.4
7.44
92.56
89.3
92.56
159.5
3.8
96.2
89.3
92.56
tobr
165
2.21
97.79
89.3
92.56
172.3
5.11
94.89
89.3
92.56
179
5.35
94.65
89.3
92.56
end

all measurements in feet

Three Year SUMMARY	Mean	Max	Width:	Flood-	Entrench-
Cross- section	Bankfull	Bankfull	Bankfull	prone	ment
Year	Width	Depth	Depth	Ratio	width
1999	2	40.00	2.05	3.74	19.49
2001	2	35.40	1.30	1.38	27.20
2003	2	38.90	2.10	3.26	18.52
					55.80
					1.43

TOPipe=Top of pipe/bench mark

LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TOPools=Top of pool

S-MAX=Max depth sediment lens

LB=Left bank

RB=Right bank

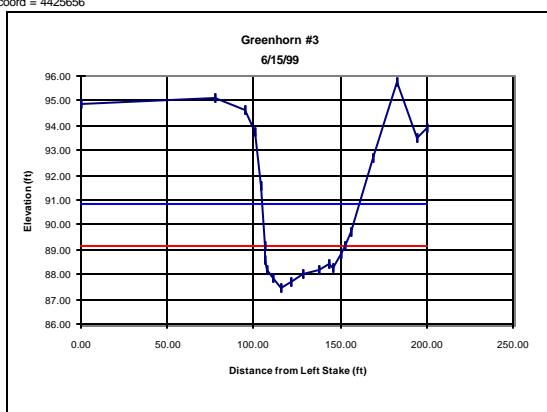
TOB=Top of bank

BF=Bankfull

T=Thalweg

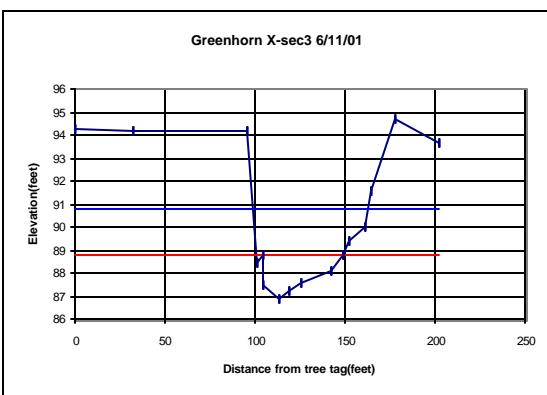
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UTM Y-coord = 4425656

### Greenhorn Cr X-sec 3

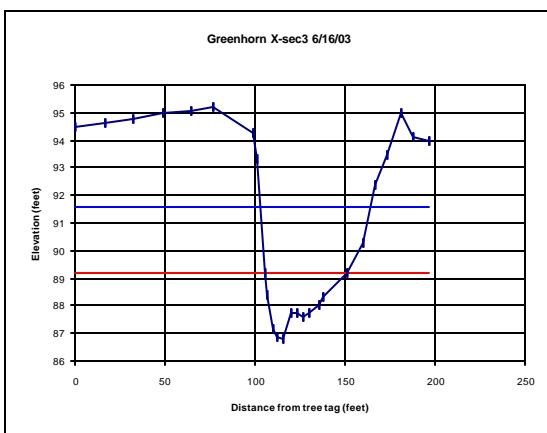


Blue Line=2x Bankfull Elev Red Line=Mean Bankfull Elev Dark Blue Line w/Markers=Basic Cross Section

Dist. Fr or Total	Bankfull	2xBankfull
Left Stake	Elevation	Elevation
0.00	94.85	89.14042
77.30	95.14	89.14042
95.00	94.62	89.14042
100.70	93.73	89.14042
104.20	91.57	89.14042
106.30	89.14	89.14042
106.90	88.62	89.14042
107.80	88.16	89.14042
111.10	87.86	89.14042
115.30	87.43	89.14042
122.00	87.70	89.14042
129.00	87.99	89.14042
138.00	88.16	89.14042
143.00	88.42	89.14042
145.60	88.29	89.14042
151.00	88.85	89.14042
153.10	89.14	89.14042
156.00	89.73	89.14042
168.50	92.72	89.14
183.00	95.77	89.14042
194.00	93.47	89.14042
200.00	93.90	89.14042



Dist. Fr or Total	Total	Bankfull	2xBankfull	Notes
Left Stake	Depth	Elevation	Elevation	
0	5.77	94.23	88.82	90.81 TBM
32	5.82	94.18	88.82	90.81
96	5.86	94.14	88.82	90.81 TOBL
101.4	11.53	88.47	88.82	90.81
104.8	11.18	88.82	88.82	90.81 BFL
104.9	12.52	87.48	88.82	90.81 WEL
112.8	13.17	86.83	88.82	90.81 T
118.5	12.75	87.25	88.82	90.81
125	12.44	87.56	88.82	90.81
142.7	11.92	88.08	88.82	90.81 WER
148.9	11.18	88.82	88.82	90.81 BFR
152.5	10.64	89.36	88.82	90.81
161	9.98	90.02	88.82	90.81
164.3	8.44	91.56	88.82	90.81
177.4	5.32	94.68	88.82	90.81 TOBR
202	6.33	93.67	88.82	90.81 END



6/16/03 Greenhorn Xsect-3	2x				
Dist from left stake	Total depth	Bankfull depth	Total elevation	Bankfull elevation	bankfull Notes
0	5.5		94.5	89.2	91.57 tbm
17	5.39		94.61	89.2	91.57
32.5	5.26		94.74	89.2	91.57
49	5.05		94.95	89.2	91.57
64	4.92		95.08	89.2	91.57
77	4.79		95.21	89.2	91.57
98.4	5.77		94.23	89.2	91.57 tobl
101	6.68		93.32	89.2	91.57
105.1	10.8	0	89.2	89.2	91.57 bfl
106.7	11.6	0.8	88.4	89.2	91.57 wel
110.4	12.81	2.01	87.19	89.2	91.57
112.1	13.14	2.34	86.86	89.2	91.57
115.6	13.17	2.37	86.83	89.2	91.57
119.5	12.29	1.49	87.71	89.2	91.57
123	12.26	1.46	87.74	89.2	91.57
127	12.42	1.62	87.58	89.2	91.57
130.2	12.29	1.49	87.71	89.2	91.57
135	11.96	1.16	88.04	89.2	91.57 wer
137.3	11.67	0.87	88.33	89.2	91.57
151	10.8	0	89.2	89.2	91.57 bfr
159.6	9.75		90.25	89.2	91.57
166.5	7.61		92.39	89.2	91.57
173.6	6.53		93.47	89.2	91.57
180.6	5		95	89.2	91.57 tobr
187.7	5.9		94.1	89.2	91.57
196.5	6.02		93.98	89.2	91.57 end

all measurements in feet      Three Year SUMMAR<sup>Y</sup> Mean Max Width: Flood- Entranc

TOPipe=Top of pipe/bench mark	Cross- Bankfull	Bankfull	Bankfull	Depth	prone	ment
LEW=Left edge of water	Year	section	Width	Depth	Depth	Ratio
	1999	3	46.80	0.99	1.71	47.10
	2001	3	44.10	1.15	1.99	38.30
	2003	3	45.90	1.41	2.37	32.55
						56.85 1.19 1.47

PCT=Pool tail crest

TP=Tuning point

TOPool=Top of pool

S-MAX=Max depth sediment lens

LB=Left bank

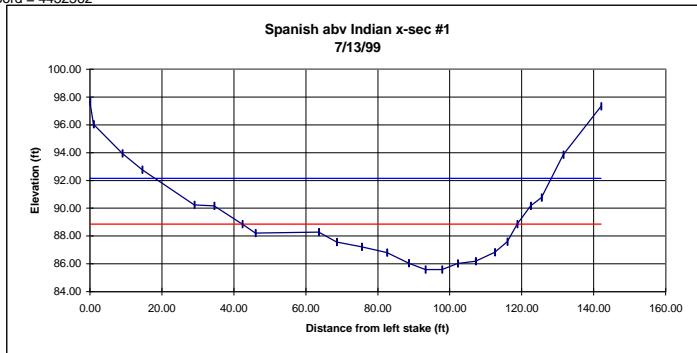
RB=Right bank

TOB=Top of bank

BF=Bankfull

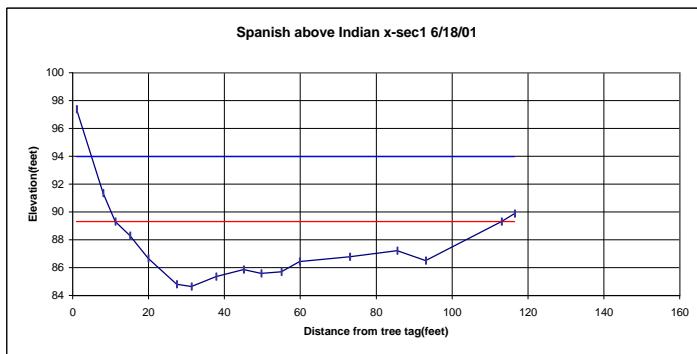
T=Thalweg

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UTM Y-coord = 4432362

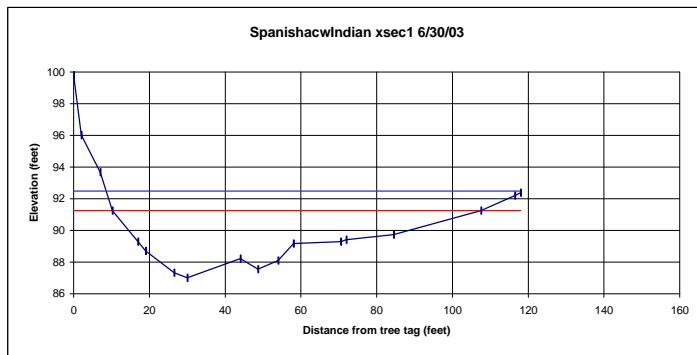


Blue Line=2x Bankfull Elev    Red Line=Mean Bankfull Elev    Dark Blue Line w/Markers=Basic Cross Section

Dist. From Left Stake	Total Depth	Bankfull Elevation	2xBankfull Elevation
0.00	97.65	88.86	92.14
1.00	96.05	88.86	92.14
9.00	93.94	88.86	92.14
14.50	92.76	88.86	92.14
29.00	90.25	88.86	92.14
34.50	90.17	88.86	92.14
42.30	88.86	88.86	92.14
46.00	88.21	88.86	92.14
63.60	88.29	88.86	92.14
68.60	87.56	88.86	92.14
75.50	87.23	88.86	92.14
82.50	86.80	88.86	92.14
88.60	86.06	88.86	92.14
93.20	85.58	88.86	92.14
97.80	85.60	88.86	92.14
102.20	86.03	88.86	92.14
107.20	86.18	88.86	92.14
112.50	86.84	88.86	92.14
116.00	87.59	88.86	92.14
118.70	88.86	88.86	92.14
122.50	90.18	88.86	92.14
125.50	90.76	88.86	92.14
131.50	93.85	88.86	92.14
142.00	97.32	88.86	92.14



Dist. From Left Stake	Total Depth	Total Elevation	Bankfull Elevation	2xBankfull Notes
1	2.61	97.39	89.31	93.97 TBM-LB
8	8.64	91.36	89.31	93.97
11.2	10.69	89.31	89.31	93.97 BFL
15.1	11.7	88.3	89.31	93.97
19.9	13.34	86.66	89.31	93.97 LEW
27.4	15.2	84.8	89.31	93.97
31.3	15.35	84.65	89.31	93.97 T
37.8	14.64	85.36	89.31	93.97
45	14.13	85.87	89.31	93.97
49.7	14.41	85.59	89.31	93.97
55	14.29	85.71	89.31	93.97
59.8	13.56	86.44	89.31	93.97 REW
73	13.21	86.79	89.31	93.97
85.5	12.78	87.22	89.31	93.97
93	13.49	86.51	89.31	93.97
113	10.69	89.31	89.31	93.97 BFR
116.5	10.12	89.88	89.31	93.97

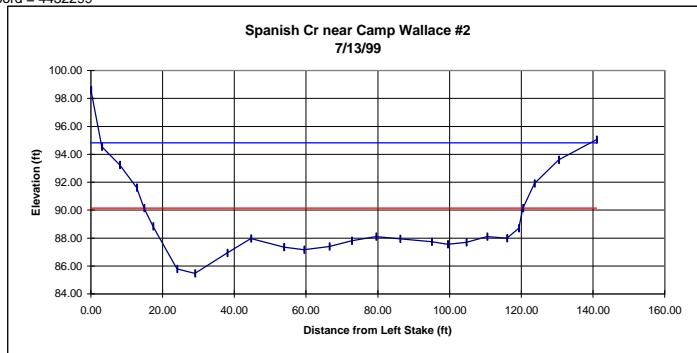


Dist from left stake	Total Depth	Bankfull depth	total elevation	bankfull elevation	2x bankfull elevation	Notes
0	0.2		99.8	91.25	92.48 ttml	
2	3.97		96.03	91.25	92.48 tob	
7	6.33		93.67	91.25	92.48	
10.2	8.75	0	91.25	91.25	92.48 bfl	
17	10.71	1.96	89.29	91.25	92.48 wel	
19	11.29	2.54	88.71	91.25	92.48	
26.5	12.67	3.92	87.33	91.25	92.48	
30	12.98	4.23	87.02	91.25	92.48 t	
44	11.78	3.03	88.22	91.25	92.48	
48.7	12.45	3.7	87.55	91.25	92.48	
54	11.9	3.15	88.1	91.25	92.48	
58	10.82	2.07	89.18	91.25	92.48	
70.5	10.71	1.96	89.29	91.25	92.48 wer	
72	10.58	1.83	89.42	91.25	92.48	
84.5	10.26	1.51	89.74	91.25	92.48	
107.5	8.75	0	91.25	91.25	92.48 bfr	
116.5	7.8		92.2	91.25	92.48	
118	7.62		92.38	91.25	92.48 end,tobr	

TOPipe=Top of pipe/bench mark  
LEW=Left edge of water  
REW=Right edge of water  
MPD=Maximum pool depth  
TBM=Temporary bench mark  
PCT=Pool tail crest  
TP=Turning point  
TOPool=Top of pool  
S-MAX=Max. depth sediment lens  
LB=Left bank  
RB=Right bank  
TOB=Top of bank  
BF=Bankfull  
T=Thalweg

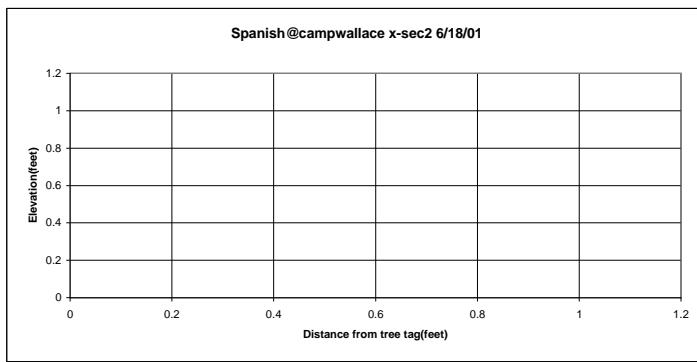
Three Year SUMMARY		Mean	Max	Width:	Flood-	Entrench-	
Year	Cross-section	Width	Bankfull Depth	Bankfull Depth	Depth	prone width	ment Ratio
1999	1	76.40	2.03	3.28	37.65	110.10	1.44
2001	1	101.80	2.90	4.66	35.10	151.80	1.49
2003	1	97.30	2.49	4.23	39.05	147.30	1.51

UTM X-coord = 673593  
UTM Y-coord = 4432299

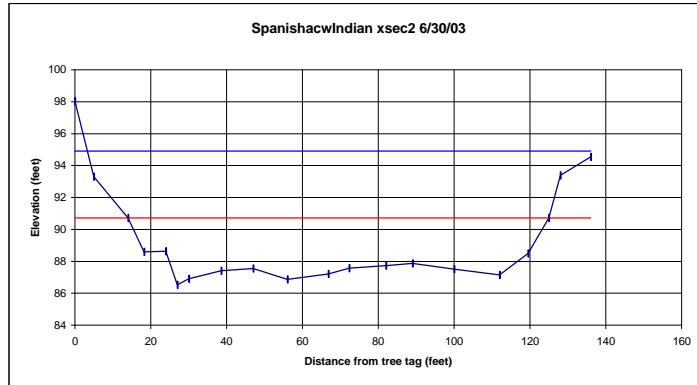


Blue Line=2x Bankfull Elev    Red Line=Mean Bankfull Elev    Dark Blue Line w/Markers=Basic Cross Section

Dist. From Left Stake	Total Depth	Bankfull Elevation	2x Bankfull Elevation
0.00	98.61	90.14	94.82
3.00	94.54	90.14	94.82
8.00	93.24	90.14	94.82
12.80	91.62	90.14	94.82
14.80	90.14	90.14	94.82
17.30	88.84	90.14	94.82
24.00	85.78	90.14	94.82
29.00	85.46	90.14	94.82
38.00	86.94	90.14	94.82
44.60	87.97	90.14	94.82
53.80	87.34	90.14	94.82
59.40	87.17	90.14	94.82
66.50	87.39	90.14	94.82
72.70	87.80	90.14	94.82
79.50	88.11	90.14	94.82
86.20	87.95	90.14	94.82
95.00	87.74	90.14	94.82
99.50	87.55	90.14	94.82
104.70	87.68	90.14	94.82
110.50	88.11	90.14	94.82
116.00	87.98	90.14	94.82
119.30	88.69	90.14	94.82
120.50	90.14	90.14	94.82
123.70	91.90	90.14	94.82
130.50	93.60	90.14	94.82
141.00	95.06	90.14	94.82



Dist. From left stake	Total depth	Total Elevation	Bankfull Elevation	2x Bankfull Notes
1	1.15	98.85	91.71	96.86 TBM-LB
6	5.81	94.19	91.71	96.86 TOBL
14	8.29	91.71	91.71	96.86 BFL
19	10.75	89.25	91.71	96.86 LEW
30	13.44	86.56	91.71	96.86 T
39.6	11.72	88.28	91.71	96.86
57	12.33	87.67	91.71	96.86
73.3	11.52	88.48	91.71	96.86
92.1	11.23	88.77	91.71	96.86
101	11.66	88.34	91.71	96.86
113	11.64	88.36	91.71	96.86
123	10.84	89.16	91.71	96.86 REW
123	8.29	91.71	91.71	96.86 BFR
127.4	7.08	92.92	91.71	96.86
131	5.52	94.48	91.71	96.86 TOBR
142	2.8	97.2	91.71	96.86



Dist from left stake	Total Depth	Bankfull depth	Total elevation	Bankfull elevation	2x Bankfull elevation	Notes
0	1.96		98.04	90.71	94.9 tbel	
5	6.7		93.3	90.71	94.9 tobl	
14	9.29	0	90.71	90.71	94.9 bfl	
18.2	11.41	2.12	88.59	90.71	94.9 wel	
24	11.37	2.08	88.63	90.71	94.9	
27	13.48	4.19	86.52	90.71	94.9 t	
30	13.1	3.81	86.9	90.71	94.9	
38.6	12.6	3.31	87.4	90.71	94.9	
47	12.45	3.16	87.55	90.71	94.9	
56	13.14	3.85	86.86	90.71	94.9	
66.8	12.79	3.5	87.21	90.71	94.9	
72.3	12.43	3.14	87.57	90.71	94.9	
82	12.28	2.99	87.72	90.71	94.9	
89	12.13	2.84	87.87	90.71	94.9	
100	12.49	3.2	87.51	90.71	94.9	
112	12.86	3.57	87.14	90.71	94.9	
119.5	11.51	2.22	88.49	90.71	94.9 wer	
125	9.29	0	90.71	90.71	94.9 bfr	
128	6.61		93.39	90.71	94.9	
136	5.45		94.55	90.71	94.9 tobr	

TOPipe=Top of pipe/bench mark  
LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TOPool=Top of pool

S-MAX=Max. depth sediment lens

LB=Left bank

RB=Right bank

TOB=Top of bank

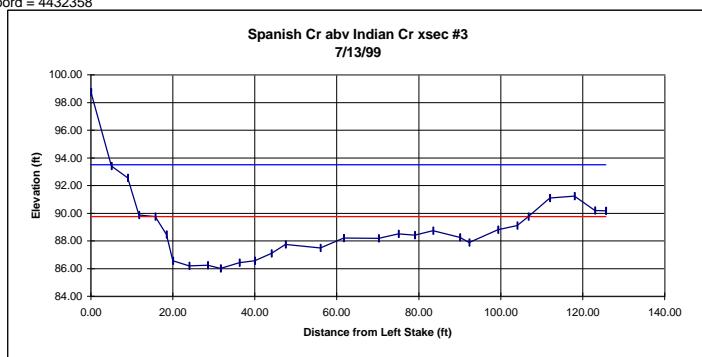
BF=Bankfull

T=Thalweg

Year	Section	Cross-Width		Bankfull Depth		Flood-prone Depth Ratio	Entrenchment width	Entrenchment ratio
		Mean	Max	Bankfull	Bankfull			
1999	2	105.70	2.58	4.68	40.95	136.48	1.29	
2001	2	109.00	3.05	5.15	35.70	135.60	1.24	
2003	2	111.00	2.93	4.19	37.86	136.50	1.23	

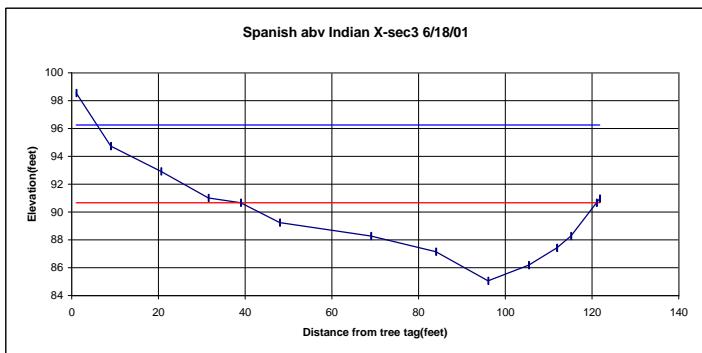
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all measurements are in feet

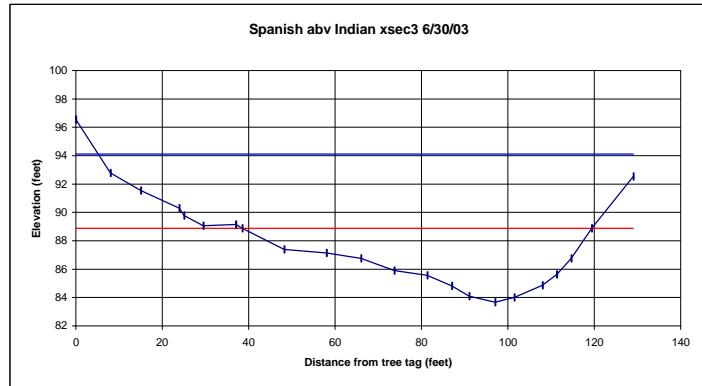


Blue Line=2x Bankfull Elev    Red Line=Mean Bankfull Elev    Dark Blue Line w/Markers=Basic Cross Section

Dist. From Left Stake	Total Elevation	Bankfull Elevation	2x Bankfull Elevation
0.00	98.75	89.76	93.51
5.00	93.42	89.76	93.51
9.00	92.55	89.76	93.51
11.70	89.87	89.76	93.51
15.70	89.76	89.76	93.51
18.40	88.46	89.76	93.51
20.00	86.57	89.76	93.51
24.00	86.20	89.76	93.51
28.50	86.25	89.76	93.51
31.60	86.01	89.76	93.51
36.20	86.42	89.76	93.51
40.00	86.56	89.76	93.51
44.00	87.09	89.76	93.51
47.50	87.75	89.76	93.51
56.00	87.48	89.76	93.51
61.70	88.21	89.76	93.51
70.20	88.19	89.76	93.51
75.00	88.51	89.76	93.51
79.00	88.41	89.76	93.51
83.50	88.75	89.76	93.51
90.00	88.26	89.76	93.51
92.30	87.88	89.76	93.51
99.30	88.81	89.76	93.51
104.00	89.10	89.76	93.51
106.70	89.76	89.76	93.51
112.00	91.10	89.76	93.51
118.00	91.24	89.76	93.51
123.00	90.20	89.76	93.51
125.60	90.17	89.76	93.51



Dist. From left stake	Total depth	Total Elevation	Bankfull Elevation	2x Bankfull Notes
1	1.44	98.56	90.66	96.26 TBM-LB
9	5.27	94.73	90.66	96.26 TOBL
20.6	7.08	92.92	90.66	96.26
31.5	8.98	91.02	90.66	96.26
39	9.34	90.66	90.66	96.26 BFL
48	10.77	89.23	90.66	96.26
69	11.72	88.28	90.66	96.26 LEW
84	12.86	87.14	90.66	96.26
96	14.94	85.06	90.66	96.26 T
105.4	13.81	86.19	90.66	96.26
111.9	12.58	87.42	90.66	96.26
115.1	11.73	88.27	90.66	96.26 REW
121	9.34	90.66	90.66	96.26 BFR
121.8	9.03	90.97	90.66	96.26



Dist from left stake	Total Depth	Bankfull depth	Total elevation	Bankfull elevation	2x bankfull elevation	Notes
0	3.46		96.54	88.89	94.11 tbml	
8	7.22		92.78	88.89	94.11	
15	8.45		91.55	88.89	94.11 tob	
23.9	9.69		90.31	88.89	94.11	
25	10.21		89.79	88.89	94.11	
29.5	10.95		89.05	88.89	94.11	
37	10.84		89.16	88.89	94.11	
38.5	11.11	0	88.89	88.89	94.11 bfl	
48.2	12.6	1.49	87.4	88.89	94.11	
58	12.85	1.74	87.15	88.89	94.11	
66	13.23	2.12	86.77	88.89	94.11 wel	
73.7	14.09	2.98	85.91	88.89	94.11	
81.3	14.43	3.32	85.57	88.89	94.11	
87	15.18	4.07	84.82	88.89	94.11	
91	15.9	4.79	84.1	88.89	94.11	
97	16.33	5.22	83.67	88.89	94.11 t	
101.5	15.99	4.88	84.01	88.89	94.11	
108	15.13	4.02	84.87	88.89	94.11	
111.3	14.36	3.25	85.64	88.89	94.11	
114.7	13.24	2.13	86.76	88.89	94.11 wer	
119.4	11.11	0	88.89	88.89	94.11 bfr	
129	7.46		92.54	88.89	94.11 endr	

TOPipe=Top of pipe/bench mark

LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TOPool=Top of pool

S-MAX=Max. depth sediment lens

LB=Left bank

RB=Right bank

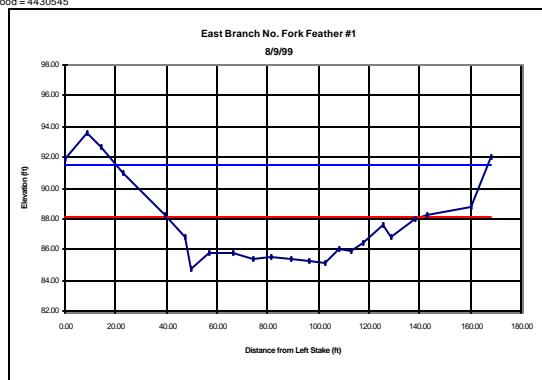
TOB=Top of bank

BF=Bankfull

T=Thalweg

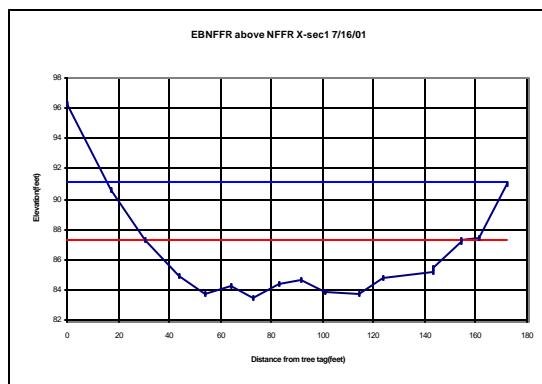
Three Year SUMMARY		Mean	Max	Width:	Flood-prone	Entrenchment	
Year	Cross-section	Bankfull Width	Bankfull Depth	Depth	Ratio	width	Ratio
1999	3	91.00	2.13	3.75	42.66	141.00	1.55
2001	3	83.00	2.80	5.60	29.28	137.50	1.67
2003	3	80.90	3.08	5.22	26.29	131.50	1.63

UTM X-coord = 651875 all measurements in feet  
 UTM Y-coord = 4430545

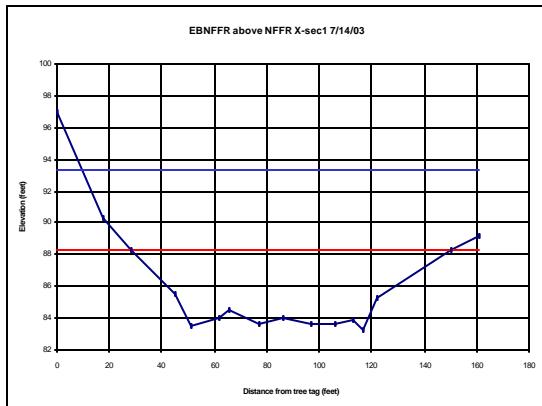


Blue Line=2x Bankfull Elev Red Line=Mean Bankfull Elev Dark Blue Line w/Markers=Basic Cross Section

Dist. From Left Stake	Total Elevation	Bankfull Elevation	2xBankfull Elevation
0.00	91.83	88.095	91.45
9.00	93.61	88.095	91.45
14.00	92.64	88.095	91.45
22.50	91.02	88.095	91.45
39.40	88.27	88.095	91.45
47.00	86.78	88.095	91.45
50.00	84.74	88.095	91.45
56.90	85.73	88.095	91.45
66.20	85.79	88.095	91.45
74.00	85.35	88.095	91.45
81.00	85.46	88.095	91.45
89.00	85.40	88.095	91.45
96.50	85.26	88.095	91.45
103.00	85.06	88.095	91.45
108.00	86.05	88.095	91.45
113.00	85.85	88.095	91.45
118.00	86.43	88.095	91.45
125.50	87.54	88.095	91.45
129.00	86.80	88.10	91.45
138.00	87.92	88.095	91.45
143.00	88.26	88.095	91.45
160.00	88.75	88.095	91.45
168.00	92.05	88.095	91.45



EBNFFR above NFFR X-sec1 7/16/01		7/16/01				
left stake	depth	Total Elevation	Bankfull Elevation	2xBankfull Elevation	Notes	
0	3.64	96.32	87.32	91.18	TBM	
17.5	9.43	90.57	87.32	91.18		
30.2	12.68	87.32	87.32	91.18	BFL	
43.6	15.04	84.96	87.32	91.18	LEW	
54.3	15.26	83.74	87.32	91.18		
64	15.8	84.2	87.32	91.18		
72.6	16.54	83.46	87.32	91.18	T	
82.6	15.56	84.44	87.32	91.18		
91.2	15.4	84.6	87.32	91.18		
101.3	16.18	83.82	87.32	91.18		
114.2	16.3	83.7	87.32	91.18		
124	15.17	84.83	87.32	91.18	REW	
143.2	14.85	85.15	87.32	91.18		
143.4	14.55	85.45	87.32	91.18		
154	12.89	87.11	87.32	91.18		
154.4	12.68	87.32	87.32	91.18	BFR	
161.3	12.55	87.45	87.32	91.18		
172	8.97	91.03	87.32	91.18	END	



ebnffr crossection-1		7/14/03				
left stake	Depth	Total depth	Bankfull	Total elevation	bankfull elevation	bankfull elevation
0	3.07		96.93	88.24	93.27	tbnl
17.5	9.69		90.31	88.24	93.27	tobl
28	11.76	0	88.24	88.24	93.27	bfl
45.3	14.51	2.75	85.49	88.24	93.27	wel
50.8	16.44	4.68	83.56	88.24	93.27	
61.4	15.95	4.19	84.05	88.24	93.27	
65.7	15.48	3.72	84.52	88.24	93.27	
77	16.32	4.56	83.68	88.24	93.27	
86	16	4.24	84	88.24	93.27	
96.7	16.41	4.65	83.59	88.24	93.27	
106.3	16.35	4.59	83.65	88.24	93.27	
113	16.07	4.31	83.93	88.24	93.27	
117	16.79	5.03	83.21	88.24	93.27	t
121.7	14.78	3.02	85.22	88.24	93.27	wer
150.4	11.76	0	88.24	88.24	93.27	bfr
161	10.88		89.12	88.24	93.27	endr

TOPipe=Top of pipe/bench mark

LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TOPool=Top of pool

S-MAX=Max. depth sediment lense

LB=Left bank

RB=Right bank

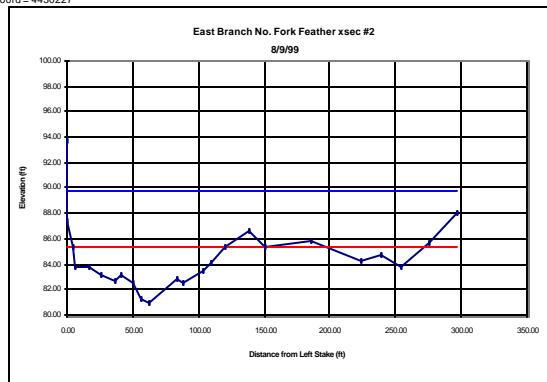
TB=Top of bank

BF=Bankfull

T=Thalweg

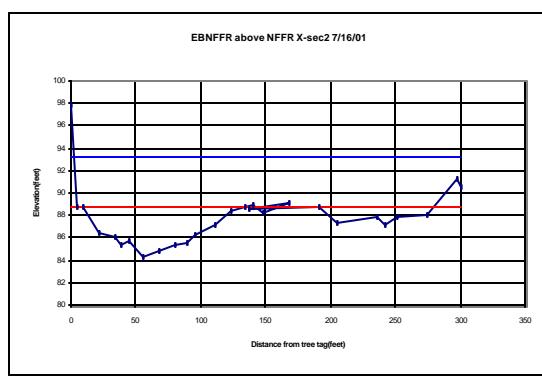
Three Year SUMMARY		Mean	Max	Width:	Flood-	Entrench-
Year	Cross- section	Bankfull	Bankfull	Depth	prone	ment
1999	1	98.60	2.26	3.53	43.63	141.95 1.44
2001	1	124.20	2.49	3.86	49.87	169.00 1.36
2003	1	122.40	3.81	5.03	32.11	160.30 1.31

UTM X-coord = 652079 all measurements in feet  
 UTM Y-coord = 4430227

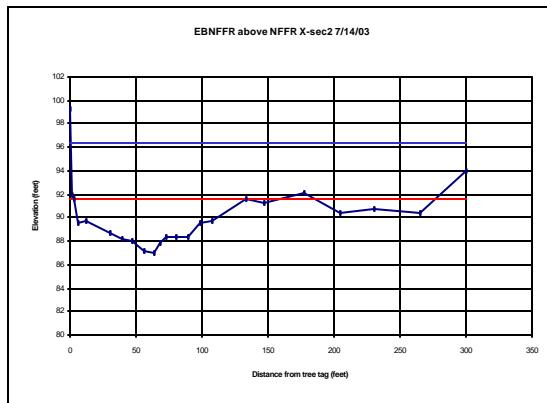


Blue Line=2x Bankfull Elev      Red Line=Mean Bankfull Elev      Dark Blue Line w/Markers=Basic Cross Section

Dist. From Left Stake	Total Elevation	Bankfull Elevation	2x Bankfull Elevation
0.00	93.68	85.33	89.72
0.01	87.38	85.33	89.72
4.80	85.33	85.33	89.72
6.50	83.84	85.33	89.72
16.00	83.79	85.33	89.72
25.70	83.15	85.33	89.72
36.00	82.64	85.33	89.72
41.30	83.19	85.33	89.72
50.60	82.49	85.33	89.72
57.00	81.29	85.33	89.72
62.00	80.94	85.33	89.72
83.90	82.87	85.33	89.72
89.00	82.50	85.33	89.72
103.80	83.50	85.33	89.72
110.00	84.15	85.33	89.72
120.10	85.33	85.33	89.72
138.00	86.63	85.33	89.72
150.60	85.38	85.33	89.72
185.00	85.90	85.33	89.72
224.00	84.25	85.33	89.72
238.40	84.75	85.33	89.72
254.00	83.78	85.33	89.72
275.50	85.64	85.33	89.72
296.00	87.99	85.33	89.72



EBNFFR above NFFR 7/16/01					
Dist. From left stake	Total depth	Total Elevation	Bankfull Elevation	2x Bankfull	Notes
0	2.2	97.8	88.77	93.26	TBM
42	11.23	88.77	88.77	93.26	BFL
9	11.25	88.75	88.77	93.26	
21.4	13.64	86.36	88.77	93.26	LEW
34.5	13.86	86.14	88.77	93.26	
39	14.67	85.33	88.77	93.26	
45.3	14.3	85.7	88.77	93.26	
56	15.72	84.28	88.77	93.26	T
68	15.22	84.78	88.77	93.26	
80.4	14.71	85.29	88.77	93.26	
90	14.52	85.48	88.77	93.26	
95	13.72	86.28	88.77	93.26	REW
110.5	12.85	87.15	88.77	93.26	
124.1	11.68	88.32	88.77	93.26	
133.5	11.23	88.77	88.77	93.26	BFR
141	11.02	88.98	88.77	93.26	
147.8	11.73	88.27	88.77	93.26	
168.8	10.91	89.09	88.77	93.26	
136.7	11.5	88.5	88.77	93.26	
191.3	11.25	88.75	88.77	93.26	
205.2	12.72	87.28	88.77	93.26	
236	12.15	87.85	88.77	93.26	
242	12.92	87.08	88.77	93.26	
251.6	12.16	87.84	88.77	93.26	
274.5	11.94	88.06	88.77	93.26	
297	8.68	91.32	88.77	93.26	
300.6	9.42	90.58	88.77	93.26	END



ebnffr crosection-2 7/14/03					
2x					
Dist from left stake	Total depth	Bankfull depth	Total elevation	Bankfull elevation	bankfull elevation Notes
0	0.79		99.21	91.65	96.34 tbml
2	7.99		92.01	91.65	96.34
3	8.35	0	91.65	91.65	96.34 bfl
6.5	10.37	2.02	89.63	91.65	96.34 wel
12.4	10.22	1.87	89.78	91.65	96.34
30	11.34	2.99	88.66	91.65	96.34
39.7	11.73	3.38	88.27	91.65	96.34
47.7	11.93	3.58	88.07	91.65	96.34
55.8	12.81	4.46	87.19	91.65	96.34
63.4	13.04	4.69	86.96	91.65	96.34
68.6	12.21	3.86	87.79	91.65	96.34 t
73	11.61	3.26	88.39	91.65	96.34
79.6	11.57	3.22	88.43	91.65	96.34
89.5	11.61	3.26	88.39	91.65	96.34
98.7	10.42	2.07	89.58	91.65	96.34
107.1	10.28	1.93	89.72	91.65	96.34
133.5	8.35	0	91.65	91.65	96.34 wer
147.5	8.68		91.32	91.65	96.34 bfr
177.5	7.87		92.13	91.65	96.34
204.4	9.63		90.37	91.65	96.34
230.9	9.18		90.82	91.65	96.34
265	9.61		90.39	91.65	96.34
300	6.09		93.91	91.65	96.34

TOPipe=Top of pipe/bench mark

LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TOPools=Top of pool

S-MAX=Max depth sediment lens

LB=Left bank

RB=Right bank

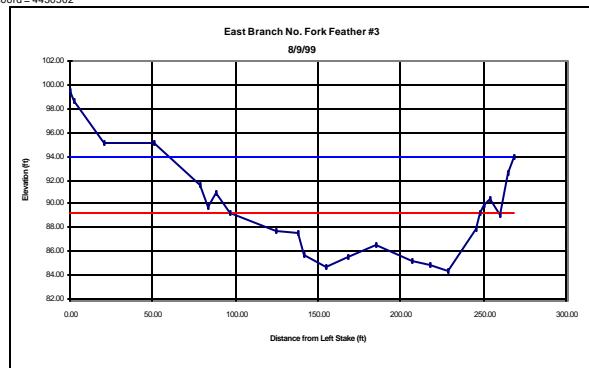
TOP=Top of bank

BF=Bankfull

T=Thalweg

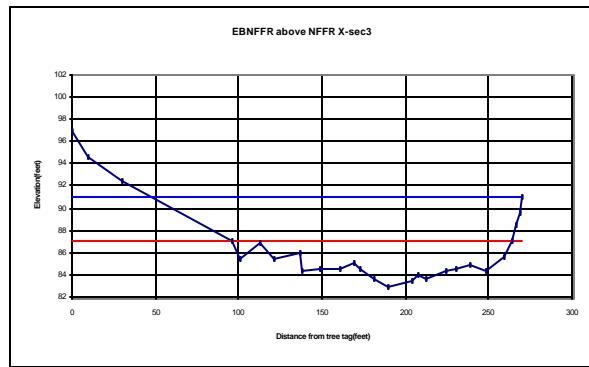
Three Year SUMMARY		Mean	Max	Width:	Flood-	Entrench-
Year	Cross- section	Bankfull Width	Bankfull Depth	Depth Ratio	prone width	ment
1999	2	115.30	2.47	4.39	46.73	294.80
2001	2	129.30	2.41	4.49	53.65	342.00
2003	2	130.50	3.48	4.69	37.54	327.40
					2.51	

UTM X-coord = 652407 all measurements are in feet  
 UTM Y-coord = 4430502

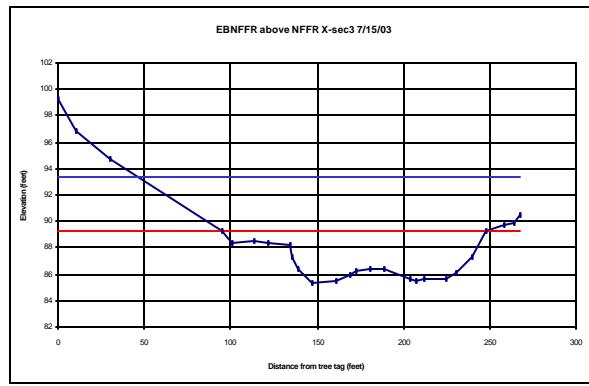


Blue Line=2x Bankfull Elev    Red Line=Mean Bankfull Elev    Dark Blue Line w/Markers=Basic Cross Section

Dist. From Left Stake	Total depth	Bankfull elevation	2x Bankfull elevation
0.00	99.48	89.2	93.98
2.00	98.69	89.2	93.98
21.00	95.10	89.2	93.98
51.00	95.00	89.2	93.98
79.00	91.56	89.2	93.98
83.00	89.66	89.2	93.98
88.00	90.96	89.2	93.98
97.00	89.20	89.2	93.98
125.00	87.71	89.2	93.98
138.00	87.55	89.2	93.98
142.00	85.75	89.2	93.98
155.00	84.75	89.2	93.98
168.50	85.50	89.2	93.98
184.60	86.62	89.2	93.98
206.70	85.26	89.2	93.98
218.00	84.87	89.2	93.98
228.50	84.42	89.2	93.98
245.00	87.83	89.2	93.98
247.60	89.20	89.2	93.98
250.70	89.86	89.2	93.98
254.00	90.32	89.2	93.98
260.00	89.03	89.2	93.98
265.30	92.52	89.2	93.98
268.60	93.98	89.2	93.98



Dist. From left stake	Total depth	Total Bankfull elevation	2x Bankfull Notes
0	3	97	86.96
10	5.35	94.65	86.96
30	7.57	92.43	86.96
96.3	13.04	86.96	86.96
100.5	14.56	85.44	86.96
113	13.2	86.8	86.96
121.5	14.58	85.42	86.96
137	13.96	86.04	86.96
138.5	15.57	84.43	86.96
148.4	15.52	84.48	86.96
161	15.48	84.52	86.96
169	15.02	84.98	86.96
172.8	15.42	84.58	86.96
181	16.36	83.64	86.96
189	17.02	82.98	86.96
204	16.5	83.5	86.96
207.3	16.06	83.94	86.96
212.5	16.36	83.64	86.96
224.3	15.65	84.35	86.96
230.1	15.42	84.58	86.96
238.8	15.1	84.9	86.96
248	15.57	84.43	86.96
258.6	14.42	85.58	86.96
263.9	13.04	86.96	86.96
266.5	11.46	88.54	86.96
268.6	10.41	89.59	86.96
269.5	8.91	91.09	86.96
			90.94 END



Dist. from left stake	Total depth	Bankfull depth	Total elevation	Bankfull elevation	2x bankfull	Notes
0	0.8		99.2	89.32	93.38	tbnl
10	3.08		96.92	89.32	93.38	
30	5.2		94.8	89.32	93.38	tobl
95.3	10.68	0	89.32	89.32	93.38	bfl
100.5	11.58	0.9	88.42	89.32	93.38	
113	11.52	0.84	88.48	89.32	93.38	
121.5	11.71	1.03	88.29	89.32	93.38	
134.3	11.74	1.06	88.26	89.32	93.38	
135.5	12.7	2.02	87.3	89.32	93.38	wel
138.5	13.57	2.89	86.43	89.32	93.38	
147.1	14.74	4.06	85.26	89.32	93.38	t
161	14.45	3.77	85.55	89.32	93.38	
169	14.13	3.45	85.87	89.32	93.38	
172.8	13.81	3.13	86.19	89.32	93.38	
181	13.56	2.88	86.44	89.32	93.38	
189	13.63	2.95	86.37	89.32	93.38	
204	14.35	3.67	85.65	89.32	93.38	
207.3	14.46	3.78	85.54	89.32	93.38	
212.5	14.42	3.74	85.58	89.32	93.38	
224.3	14.29	3.61	85.71	89.32	93.38	
230.1	13.88	3.2	86.12	89.32	93.38	
240.3	12.68	2	87.32	89.32	93.38	wer
247.4	10.68	0	89.32	89.32	93.38	bfr
258.6	10.2		89.8	89.32	93.38	
263.9	10.11		89.89	89.32	93.38	
267	9.55		90.45	89.32	93.38	

TOPipe=Top of pipe/bench mark

LEW=Left edge of water

R EW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TOPool=Top of pool

S-MAX=Max depth sediment lens

LB=Left bank

RB=Right bank

TOB=Top of bank

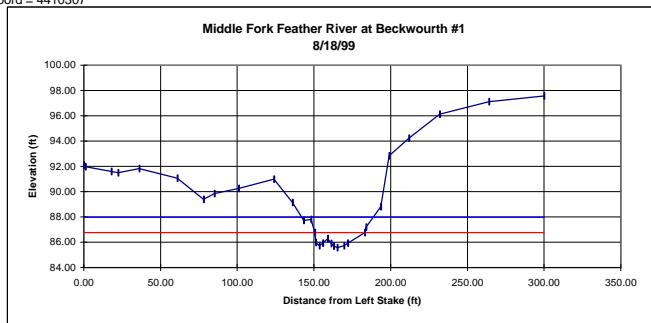
BF=Bankfull

T=Thalweg

Year	Cross-section	Mean Bankfull		Width: Bankfull		Flood-prone	Entrenchment
		Width	Depth	Depth	Ratio	width	Ratio
1999	3	150.60	3.17	4.78	47.45	214.30	1.42
2001	3	167.60	2.20	3.98	76.18	211.40	1.26
2003	3	152.10	2.58	4.06	59.00	207.20	1.36

UTM X-coord. = 722738  
UTM Y-coord. = 4410307

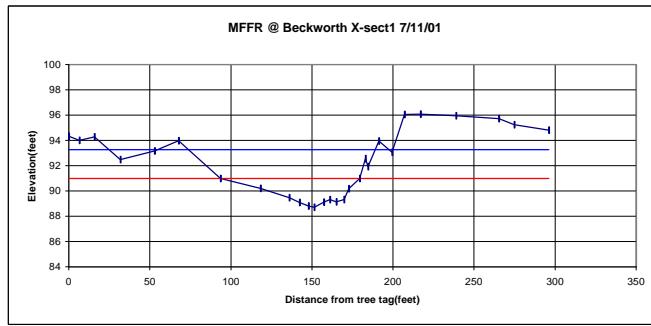
All measurements are in feet



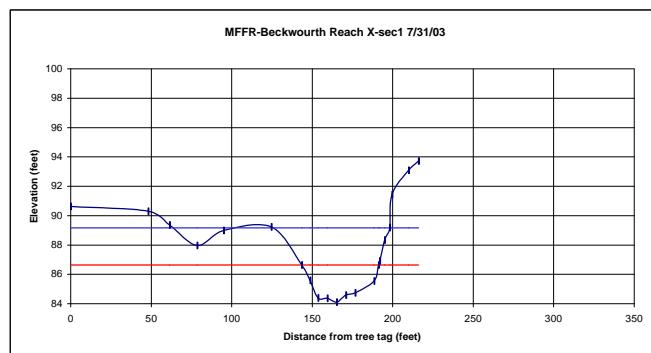
Blue Line=2x Bankfull Elev      Red Line=Mean Bankfull Elev      Dark Blue Line w/Markers=Basic Cross Section

Dist. From Total Bankfull UTM X-coord. = 722739  
Left Stake Elevation Elevation [UTM Y-coord. = 4410308]

0.00	92.11	86.77
1.00	91.98	86.77
18.00	91.60	86.77
22.30	91.49	86.77
36.00	91.82	86.77
61.00	91.07	86.77
78.00	89.39	86.77
85.00	89.85	86.77
101.00	90.25	86.77
124.00	91.00	86.77
136.00	89.15	86.77
143.30	87.72	86.77
148.00	87.81	86.77
150.50	86.77	86.77
151.20	85.97	86.77
153.50	85.71	86.77
155.80	85.92	86.77
159.00	86.28	86.77
161.20	85.90	86.77
163.00	85.69	86.77
165.30	85.57	86.77
169.50	85.72	86.77
172.00	85.93	86.77
183.20	86.77	86.77
184.00	87.20	86.77
193.50	88.80	86.77
199.00	92.83	86.77
212.00	94.24	86.77
232.00	96.12	86.77
264.00	97.11	86.77
300.00	97.57	86.77



Middle Fork Feather at Beckworth	7/11/01
Dist. From Total Bankfull 2xBankfull Notes	Elevation Elevation Elevation
left stake depth	
0 5.66	94.34 90.99 93.26 TBM
6.6 6	94 90.99 93.26
15.8 5.73	94.27 90.99 93.26
31.7 7.51	92.49 90.99 93.26
53 6.83	93.17 90.99 93.26
67.8 6.03	93.97 90.99 93.26
93.6 9.01	90.99 90.99 93.26 BFL
118.3 9.81	90.19 90.99 93.26
136 10.53	89.47 90.99 93.26
142.4 10.92	89.08 90.99 93.26
147.8 11.18	88.82 90.99 93.26
151.5 11.28	88.72 90.99 93.26 T
157.3 10.89	89.11 90.99 93.26
161.1 10.69	89.31 90.99 93.26
165 10.86	89.14 90.99 93.26
169.8 10.69	89.31 90.99 93.26
172.8 9.82	90.18 90.99 93.26
179.5 9.01	90.99 90.99 93.26 BFR
183.05 7.45	92.55 90.99 93.26
184.5 8.07	91.93 90.99 93.26
191.2 6.04	93.96 90.99 93.26
199.3 6.93	93.07 90.99 93.26
207 3.95	96.05 90.99 93.26 TOBR
217 3.93	96.07 90.99 93.26
238.9 4.05	95.95 90.99 93.26
265.4 4.28	95.72 90.99 93.26
274.8 4.75	95.25 90.99 93.26
296.1 5.18	94.82 90.99 93.26 End



mfr at bck crossection-1	7/31/03
Dist from Total Bankfull Total Bankfull 2x bankfull Notes	left stake Depth depth elevation elevation
0 9.37	90.63 86.64 89.17 tbml
48 9.7	90.3 86.64 89.17
61.5 10.63	89.37 86.64 89.17
78.5 12.04	87.96 86.64 89.17
95 11.01	88.99 86.64 89.17
124.6 10.77	89.23 86.64 89.17 tob1
143.5 13.36	0 86.64 86.64 89.17 bfl
148.6 14.4	1.04 85.6 86.64 89.17
153.6 15.6	2.24 84.4 86.64 89.17
159.4 15.64	2.28 84.36 86.64 89.17
165.2 15.89	2.53 84.11 86.64 89.17 t
171 15.42	2.06 84.58 86.64 89.17
176.6 15.25	1.89 84.75 86.64 89.17
188.4 14.46	1.1 85.54 86.64 89.17
191.2 13.36	0 86.64 86.64 89.17 bfr
192 13.08	86.92 86.64 89.17
195 11.67	88.33 86.64 89.17
198.1 10.82	89.18 86.64 89.17
199.5 8.56	91.44 86.64 89.17
209.9 6.91	93.09 86.64 89.17 tobr
216 6.27	93.73 86.64 89.17 endr

TOPipe=Top of pipe/bench mark

LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TOPool=Top of pool

S-MAX=Max depth sediment lens

Lb=Left bank

Rb=Right bank

TOB=Top of bank

BF=Bankfull

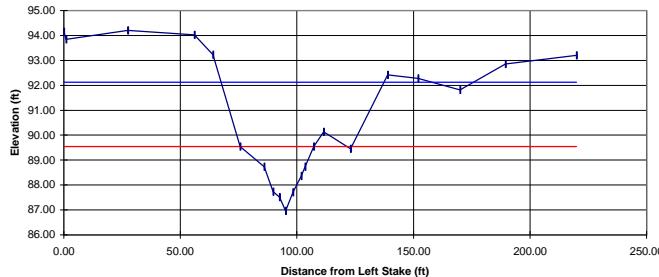
T=Thalweg

Three Year SUMMARY	Mean	Max	Width:	Flood-	Entrench-
Cross-	Bankfull	Bankfull	Bankfull	prone	ment
Year	Section	Width	Depth	Depth	Ratio
1999	1	32.70	0.92	1.20	35.72 46.55 1.42
2001	1	85.90	1.50	2.27	57.26 124.60 1.45
2003	1	47.70	1.64	2.53	29.04 138.70 2.91

UTM X-coord. = 722605.9  
UTM Y-coord = 4410413.5

All measurements are in feet

Middle Fork Feather River at Beckwourth  
xsec #2 8/18/99



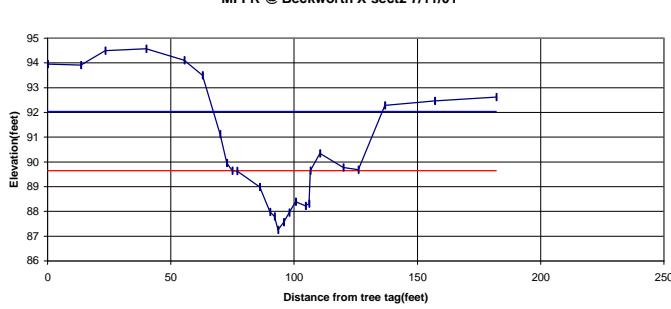
Dist. From Total Left Stake	Total Elevation	UTM X-coord. = 722605.10 UTM Y-coord = 4410413.6
0.00	94.15	
1.00	93.84	
27.50	94.21	
56.00	94.02	
64.00	93.23	
75.70	89.54	
86.00	88.74	
89.80	87.73	
92.50	87.51	
95.20	86.96	
98.30	87.71	
101.80	88.36	
103.50	88.74	
107.20	89.54	
111.50	90.13	
123.00	89.46	
139.00	92.42	
152.00	92.28	
170.00	91.81	
189.50	92.86	
220.00	93.20	

Blue Line=2x Bankfull Elev

Red Line=Mean Bankfull Elev

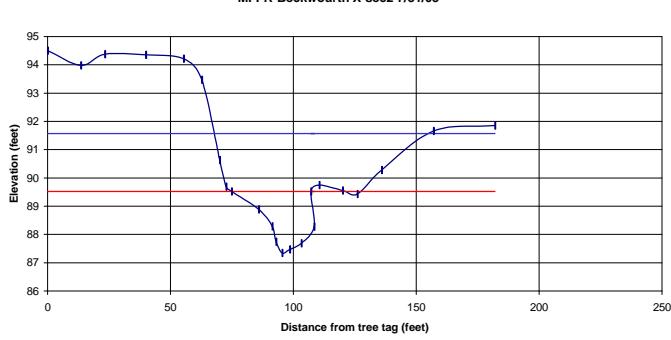
Dark Blue Line w/Markers=Basic Cross Section

MFFR @ Beckworth X-sect2 7/11/01



Middle Fork Feather at Beckworth	7/11/01			
Dist. From Total left stake	Total depth	Bankfull Elevation	2xBankfull Notes	Elevation
0	6.05	93.95	89.65	92.04 TBM-LB
13.5	6.09	93.91	89.65	92.04
23.3	5.51	94.49	89.65	92.04
40	5.43	94.57	89.65	92.04
55.4	5.89	94.11	89.65	92.04
62.8	6.5	93.5	89.65	92.04 TOBL
70	8.88	91.12	89.65	92.04
72.7	10.04	89.96	89.65	92.04
74.9	10.35	89.65	89.65	92.04 BFL
76.9	10.36	89.64	89.65	92.04
86.1	11.01	88.99	89.65	92.04
90.2	12.02	87.98	89.65	92.04 LEW
92	12.2	87.8	89.65	92.04
93.4	12.74	87.26	89.65	92.04 T
95.8	12.44	87.56	89.65	92.04
98	12.05	87.95	89.65	92.04 REW
100.6	11.61	88.39	89.65	92.04
104.6	11.78	88.22	89.65	92.04
106.1	11.68	88.32	89.65	92.04
106.6	10.35	89.65	89.65	92.04 BFR
110.5	9.65	90.35	89.65	92.04
120	10.23	89.77	89.65	92.04
126	10.32	89.68	89.65	92.04
136.8	7.72	92.28	89.65	92.04 TOBR
157	7.53	92.47	89.65	92.04
182	7.38	92.62	89.65	92.04 TBM-RB

MFFR-Beckwourth X-sec2 7/31/03



mffr at bck crossection-2	7/31/03					
Dist from left stake	Total Depth	Bankfull depth	Total elevation	Bankfull elevation	2x Bankfull elevation	Notes
0	5.5	94.5	89.52	91.57	t bml	
13.5	6.02	93.98	89.52	91.57		
23.3	5.62	94.38	89.52	91.57		
40	5.64	94.36	89.52	91.57		
55.4	5.78	94.22	89.52	91.57		
62.8	6.53	93.47	89.52	91.57	tbl	
70	9.37	90.63	89.52	91.57		
72.7	10.31	89.69	89.52	91.57		
74.9	10.48	0	89.52	89.52	91.57 bfl	
85.9	11.11	0.63	88.89	89.52	91.57	
91.4	11.71	1.23	88.29	89.52	91.57 wel	
93	12.26	1.78	87.74	89.52	91.57	
95.4	12.65	2.17	87.35	89.52	91.57	
98.6	12.53	2.05	87.47	89.52	91.57 t	
103.2	12.31	1.83	87.69	89.52	91.57	
108.4	11.72	1.24	88.28	89.52	91.57 wer	
107.2	10.48	0	89.52	89.52	91.57 bfr	
110.5	10.25		89.75	89.52	91.57	
120	10.44		89.56	89.52	91.57	
126	10.57		89.43	89.52	91.57	
136	9.72		90.28	89.52	91.57	
157	8.34		91.66	89.52	91.57	
182	8.15		91.85	89.52	91.57 endr	

TOPipe=Top of pipe/bench mark

LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TOPool=Top of pool

S-MAX=Max. depth sediment lense

LB=Left bank

RB=Right bank

TOB=Top of bank

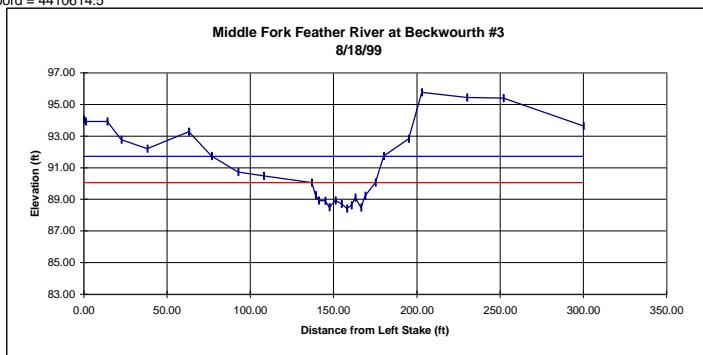
BF=Bankfull

T=Thalweg

Three Year SUMMARY		Mean	Max	Width:	Flood-	Entrench-
Year	Cross- section	Bankfull Width	Bankfull Depth	Bankfull Depth	prone	ment
1999	2	31.50	1.58	2.58	19.99	108.24
2001	2	31.70	1.30	2.39	24.38	66.90
2003	2	32.30	1.37	2.05	23.64	54.10
					1.67	

UTM X-coord = 722527.9  
UTM Y-coord = 4410614.5

all measurements in feet

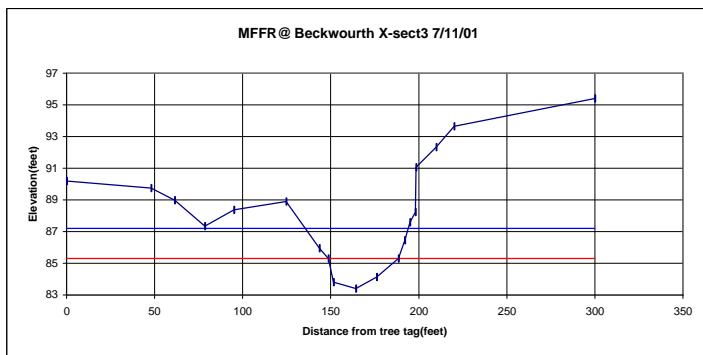


**Blue Line**=2x Bankfull Elev

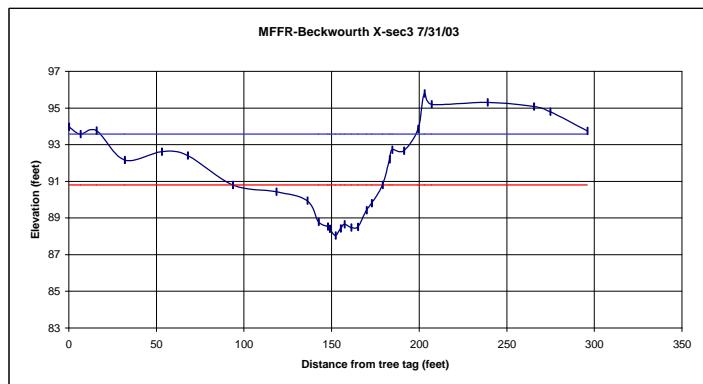
**Red Line=Mean Bankfull Elev**

**Dark Blue Line w/Markers=Basic Cross Section**

Dist.	From	Total	Bankfull	2xBankfull
Left	Stake	Elevation	Elevation	Elevation
	0.00	94.04	90.07	91.71
	1.00	93.92	90.07	91.71
	14.00	93.92	90.07	91.71
	22.50	92.77	90.07	91.71
	38.00	92.20	90.07	91.71
	63.00	93.27	90.07	91.71
	76.70	91.75	90.07	91.71
	92.60	90.72	90.07	91.71
	108.00	90.49	90.07	91.71
	136.80	90.07	90.07	91.71
	139.20	89.27	90.07	91.71
	141.00	88.93	90.07	91.71
	145.00	88.91	90.07	91.71
	147.50	88.51	90.07	91.71
	151.00	88.92	90.07	91.71
	154.80	88.73	90.07	91.71
	158.00	88.43	90.07	91.71
	160.70	88.62	90.07	91.71
	163.00	89.11	90.07	91.71
	166.50	88.48	90.07	91.71
	169.00	89.24	90.07	91.71
	175.00	90.07	90.07	91.71
	180.00	91.74	90.07	91.71
	195.00	92.84	90.07	91.71
	203.00	95.77	90.07	91.71
	230.00	95.45	90.07	91.71
	252.00	95.40	90.07	91.71
	300.00	93.64	90.07	91.71



Middle Fork Feather at Beckworth	7/11/01			
Dist. From Total	Total	Bankfull	2xBankfull	Notes
left stake	depth	Elevation	Elevation	Elevation
0	9.8	90.2	85.3	87.2 TBM
48	10.26	89.74	85.3	87.2
61.5	11.03	88.97	85.3	87.2
78.5	12.66	87.34	85.3	87.2
95	11.63	88.37	85.3	87.2
124.6	11.1	88.9	85.3	87.2 TOBL
143.5	14.06	85.94	85.3	87.2
148.6	14.7	85.3	85.3	87.2 BFL
151.6	16.2	83.8	85.3	87.2
164.3	16.6	83.4	85.3	87.2 T
176	15.87	84.13	85.3	87.2
188.4	14.7	85.3	85.3	87.2 BFR
192	13.54	86.46	85.3	87.2
195	12.41	87.59	85.3	87.2
198.1	11.76	88.24	85.3	87.2
198.4	8.93	91.07	85.3	87.2
209.9	7.66	92.34	85.3	87.2 TOBR
220	6.35	93.65	85.3	87.2
300	4.6	95.4	85.3	87.2 End



mfr at bck crossection-3						
7/31/03						
Dist from left stake	Total Depth	Bankfull depth	Total elevation	Bankfull elevation	Bankfull elevation	2x
						Notes
0	6.02		93.98	90.81	93.57	tblm
6.6	6.43		93.57	90.81	93.57	
15.8	6.23		93.77	90.81	93.57	
31.7	7.84		92.16	90.81	93.57	
53	7.38		92.62	90.81	93.57	
67.8	7.59		92.41	90.81	93.57	tobl
93.6	9.19	0	90.81	90.81	93.57	bfl
118.3	9.56	0.37	90.44	90.81	93.57	
136	10.05	0.86	89.95	90.81	93.57	
142.4	11.2	2.01	88.8	90.81	93.57	
147.8	11.46	2.27	88.54	90.81	93.57	
148.9	11.58	2.39	88.42	90.81	93.57	wel
152.2	11.95	2.76	88.05	90.81	93.57	t
155	11.57	2.38	88.43	90.81	93.57	wer
157.3	11.34	2.15	88.66	90.81	93.57	
161.1	11.52	2.33	88.48	90.81	93.57	
165	11.48	2.29	88.52	90.81	93.57	
169.8	10.57	1.38	89.43	90.81	93.57	
172.8	10.2	1.01	89.8	90.81	93.57	
179	9.19	0	90.81	90.81	93.57	bfr
183	7.8		92.2	90.81	93.57	
184.5	7.27		92.73	90.81	93.57	
191.2	7.33		92.67	90.81	93.57	
199.3	6.15		93.85	90.81	93.57	
203	4.2		95.8	90.81	93.57	tobr
207	4.8		95.2	90.81	93.57	
238.9	4.7		95.3	90.81	93.57	
265.4	4.92		95.08	90.81	93.57	
274.8	5.2		94.8	90.81	93.57	
296	6.25		93.75	90.81	93.57	endr

TOPipe=Top of pipe/bench mark  
LEW=Left edge of water

REW=Right edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench ma

PCT=Pool tail cre

TP=Turning point

TOPool=Top C

S-MAX=Max c

LB=Left bank

RB=Right ban

TOB=Top of b

FB=Top of b  
BF=Bankfull

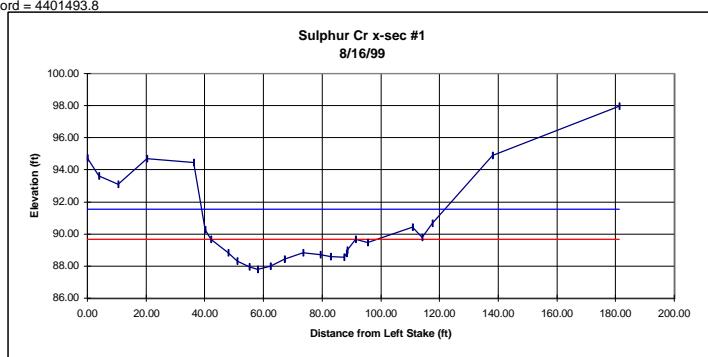
B=Bankrait  
T=Thalweg

T-Taiwag

Three Year SUMMARY			Mean	Max	Width:	Flood-	Entrench-
Year	Cross- section	Bankfull Width	Bankfull Depth	Bankfull Depth	Depth	prone width	ment Ratio
1999	3	38.20	1.24	1.64	30.85	102.59	2.69
2001	3	39.80	1.14	1.90	34.91	139.50	3.57
2003	3	85.40	1.71	2.76	50.01	189.50	2.22

UTM X-coord = 707611.7  
UTM Y-coord = 4401493.8

### Sulphur x-sec 1



Blue Line=2x Bankfull Elev    Red Line=Mean Bankfull Elev    Dark Blue Line w/Markers=Basic Cross Section

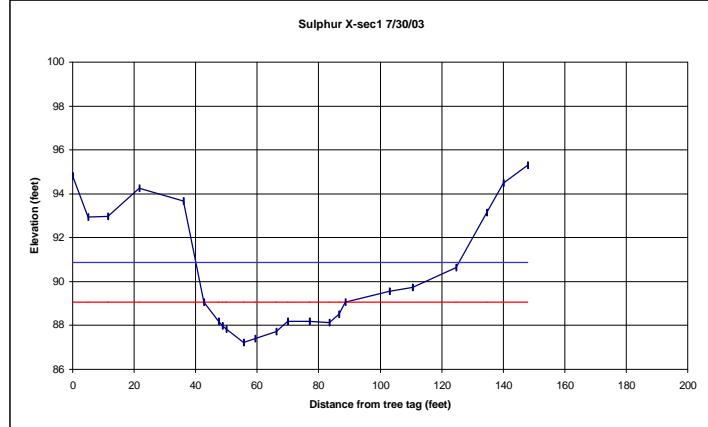
Dist. From Left Stake	Total Depth	Bankfull Elevation	2x Bankfull Elevation
0.00	94.72	89.68	91.56
4.00	93.63	89.68	91.56
10.40	93.09	89.68	91.56
20.30	94.69	89.68	91.56
36.30	94.44	89.68	91.56
40.20	90.28	89.68	91.56
42.00	89.68	89.68	91.56
48.00	88.82	89.68	91.56
51.00	88.30	89.68	91.56
55.20	87.95	89.68	91.56
58.10	87.80	89.68	91.56
62.30	88.00	89.68	91.56
67.20	88.44	89.68	91.56
73.60	88.85	89.68	91.56
79.40	88.70	89.68	91.56
82.80	88.59	89.68	91.56
87.40	88.56	89.68	91.56
88.40	88.80	89.68	91.56
88.50	89.00	89.68	91.56
91.30	89.68	89.68	91.56
95.60	89.47	89.68	91.56
110.90	90.43	89.68	91.56
114.00	89.80	89.68	91.56
117.60	90.66	89.68	91.56
138.00	94.91	89.68	91.56
181.20	97.96	89.68	91.56

### Sulphur X-sec1 7/9/01



Dist. From left stake	Total depth	Total Elevation	Bankfull Elevation	2x Bankfull Elevation	Notes
0	5.07	94.93	89.14	90.81	TBM-LB
5	6.86	93.14	89.14	90.81	
11.5	6.93	93.07	89.14	90.81	
21.7	5.5	94.5	89.14	90.81	
36	6.34	93.66	89.14	90.81	TOBL
43.2	10.86	89.14	89.14	90.81	BFL
47.5	11.4	88.6	89.14	90.81	
50	11.97	88.03	89.14	90.81	LEW
55.5	12.26	87.74	89.14	90.81	
59.3	12.53	87.47	89.14	90.81	T
66.2	11.96	88.04	89.14	90.81	
69.9	11.61	88.39	89.14	90.81	
77.1	11.75	88.25	89.14	90.81	
83.4	11.65	88.35	89.14	90.81	
86.9	11.45	88.55	89.14	90.81	REW
88.6	10.86	89.14	89.14	90.81	BFR
103	10.31	89.69	89.14	90.81	
110.6	10.01	89.99	89.14	90.81	
124.65	8.96	91.04	89.14	90.81	
134.6	6.91	93.09	89.14	90.81	
140.1	5.32	94.68	89.14	90.81	TOBR
146.1	4.48	95.52	89.14	90.81	
149	4.53	95.47	89.14	90.81	TBM-RB

### Sulphur X-sec1 7/30/03



Dist from left stake	Total Depth	Bankfull depth	Total elevation	Bankfull elevation	2x Bankfull elevation	Notes
0	5.2		94.8	89.05	90.88	tbnl
5	7.05		92.95	89.05	90.88	
11.5	7.02		92.98	89.05	90.88	
21.7	5.75		94.25	89.05	90.88	
36	6.34		93.66	89.05	90.88	tobl
42.6	10.95	0	89.05	89.05	90.88	bfl
47.5	11.81	0.86	88.19	89.05	90.88	
48.6	12.02	1.07	87.98	89.05	90.88	wel
50	12.16	1.21	87.84	89.05	90.88	
55.5	12.78	1.83	87.22	89.05	90.88	t
59.3	12.59	1.64	87.41	89.05	90.88	
66.2	12.28	1.33	87.72	89.05	90.88	
69.9	11.81	0.86	88.19	89.05	90.88	
77.1	11.82	0.87	88.18	89.05	90.88	
83.4	11.88	0.93	88.12	89.05	90.88	
86.5	11.49	0.54	88.51	89.05	90.88	wer
88.7	10.95	0	89.05	89.05	90.88	bfr
103	10.44		89.56	89.05	90.88	
110.6	10.26		89.74	89.05	90.88	
124.6	9.35		90.65	89.05	90.88	
134.6	6.85		93.15	89.05	90.88	
140.1	5.5		94.5	89.05	90.88	tobr
148	4.69		95.31	89.05	90.88	endr

TOPipe=Top of pipe/bench mark  
LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TOPool=Top of pool

S-MAX=Max depth sediment lens

LB=Left bank

RB=Right bank

TOB=Top of bank

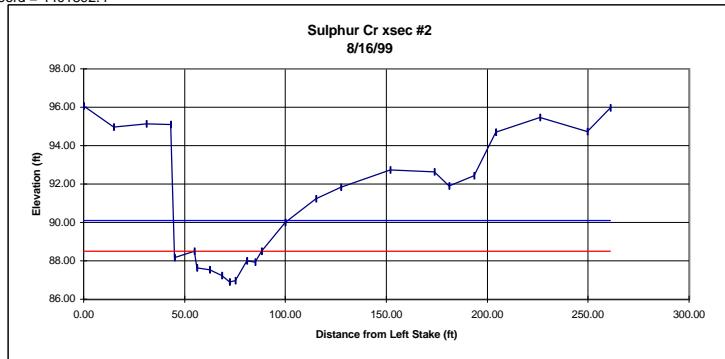
BF=Bankfull

T=Thalweg

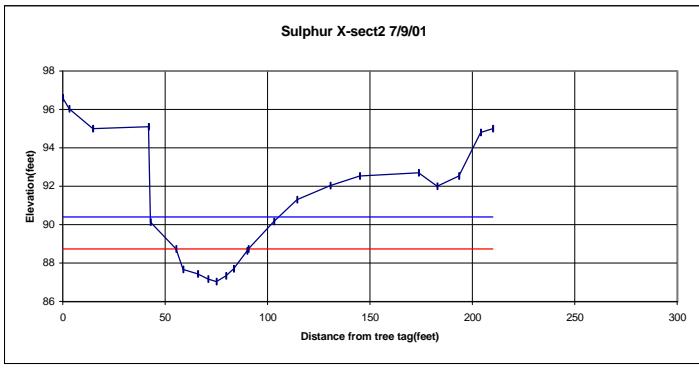
all measurements in feet

Year	Cross-section	Mean	Max	Width:	Flood-prone	Entrench-
		Bankfull Width	Bankfull Depth	Bankfull Depth	Depth Ratio	ment Ratio
1999	1	49.3	1.2	1.88	41.23	82.92
2001	1	45.40	0.88	1.67	51.60	84.40
2003	1	46.10	1.01	1.83	45.52	88.10

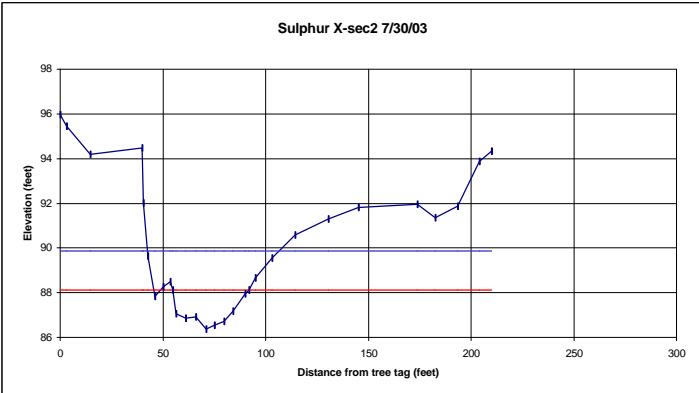
UTM X-coord = 707691.4  
UTM Y-coord = 4401392.4



Dist. From Total Left Stake	Total Elevation	Bankfull Elevation	2xBankfull Elevation
0.00	96.08	88.5	90.1
15.00	94.95	88.5	90.1
31.00	95.12	88.5	90.1
43.00	95.10	88.5	90.1
45.00	88.17	88.5	90.1
54.90	88.50	88.5	90.1
56.00	87.64	88.5	90.1
62.50	87.55	88.5	90.1
68.50	87.24	88.5	90.1
72.20	86.90	88.5	90.1
75.00	86.95	88.5	90.1
80.90	87.99	88.5	90.1
85.00	87.92	88.5	90.1
88.30	88.50	88.5	90.1
100.00	89.99	88.5	90.1
115.00	91.23	88.5	90.1
127.50	91.85	88.5	90.1
152.00	92.75	88.5	90.1
173.70	92.63	88.50	90.1
181.00	91.91	88.5	90.1
193.50	92.42	88.5	90.1
204.30	94.69	88.5	90.1
226.00	95.47	88.5	90.1
249.70	94.72	88.5	90.1
261.00	95.95	88.5	90.1



Dist. From left stake	Total depth	Total Elevation	Bankfull Elevation	2xBankfull Notes
0	3.4	96.6	88.72	90.39 TBM-LB
3	3.95	96.05	88.72	90.39
14.7	5	95	88.72	90.39
42	4.9	95.1	88.72	90.39 TOBL
42.8	9.88	90.12	88.72	90.39
55.4	11.28	88.72	88.72	90.39 BFL
58.8	12.34	87.66	88.72	90.39 LEW
65.9	12.57	87.43	88.72	90.39
71	12.85	87.15	88.72	90.39
75	12.95	87.05	88.72	90.39 T
79.7	12.65	87.35	88.72	90.39
83.5	12.3	87.7	88.72	90.39 REW
89.9	11.36	88.64	88.72	90.39
90.5	11.28	88.72	88.72	90.39 BFR
103	9.84	90.16	88.72	90.39
114.4	8.71	91.29	88.72	90.39
130.5	7.98	92.02	88.72	90.39
145.1	7.46	92.54	88.72	90.39
173.8	7.3	92.7	88.72	90.39
182.7	8.01	91.99	88.72	90.39
193.5	7.46	92.54	88.72	90.39
204	5.19	94.81	88.72	90.39 TOBR
210	5	95	88.72	90.39 TBM-RB



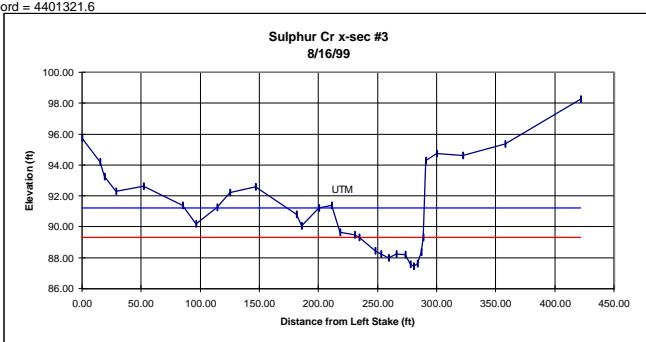
Dist from left stake	Total Depth	Bankfull depth	Total elevation	Bankfull elevation	2x Bankfull elevation	Notes
0	4.02		95.98	88.12	89.87	tbcm
3	4.56		95.44	88.12	89.87	
14.7	5.8		94.47	88.12	89.87	
40	5.53		92.01	88.12	89.87	
42.7	10.36		89.64	88.12	89.87	
46	12.17		87.83	88.12	89.87	
50	11.75		88.25	88.12	89.87	
53.6	11.52		88.48	88.12	89.87	
54.7	11.88	0	88.12	88.12	89.87	bfl
56.5	12.95	1.07	87.05	88.12	89.87	wel
61	13.14	1.26	86.86	88.12	89.87	
65.9	13.07	1.19	86.93	88.12	89.87	
71	13.63	1.75	86.37	88.12	89.87	t
75	13.46	1.58	86.54	88.12	89.87	
79.7	13.28	1.4	86.72	88.12	89.87	
84.2	12.83	0.95	87.17	88.12	89.87	wer
89.9	12.04	0.16	87.96	88.12	89.87	
91.9	11.88	0	88.12	88.12	89.87	bfr
95	11.34		88.66	88.12	89.87	
103	10.44		89.56	88.12	89.87	
114.4	9.41		90.59	88.12	89.87	
130.5	8.71		91.29	88.12	89.87	
145.1	8.2		91.8	88.12	89.87	
173.8	8.04		91.96	88.12	89.87	
182.7	8.64		91.36	88.12	89.87	
193.5	8.12		91.88	88.12	89.87	
204	6.11		93.89	88.12	89.87	tobr
210	5.68		94.32	88.12	89.87	endr

Three Year SUMMARY						
Year	Cross-section	Bankfull Width	Bankfull Depth	Bankfull Depth	Width: prone	Flood-entrenchment
1999	2	33.4	1.04	1.6	32.11	92.22 1.14
2001	2	35.10	1.00	1.67	35.10	59.90 1.70
2003	2	37.20	1.04	1.75	35.77	64.50 1.73

TOPipe=Top of pipe/bench mark  
LEW=Left edge of water  
REW=Right edge of water  
MPD=Maximum pool depth  
TBM=Temporary bench mark  
PCT=Pool tail crest  
TP=Turning point  
TOPool=Top of pool  
S-MAX=Max depth sediment lens  
LB=Left bank  
RB=Right bank  
TOB=Top of bank  
BF=Bankfull  
T=Thalweg

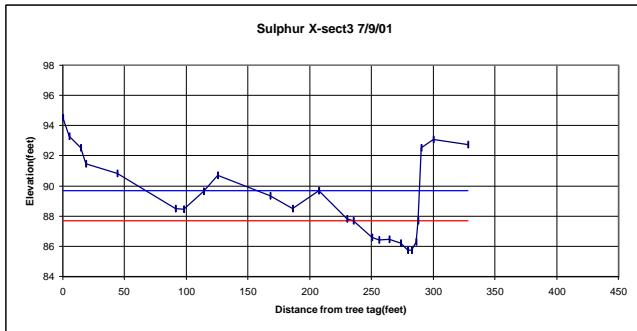
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UTM Y-coord = 4401321.6

### Sulphur Cr

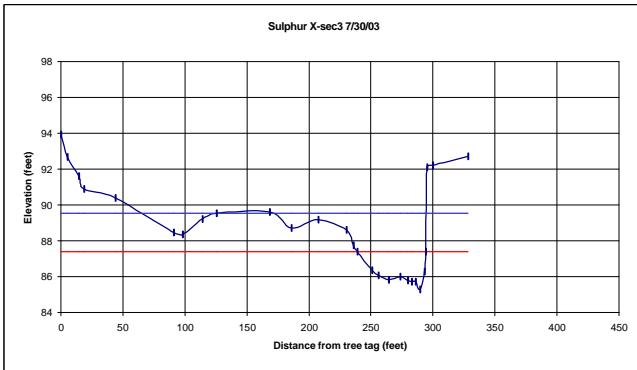


Blue Line=2x Bankfull Elev    Red Line=Mean Bankfull Elev    Dark Blue Line w/Markers=Basic Cross Section  
all measurements in feet

Dist. From Left Stake	Total Depth	Bankfull Elevation	2x Bankfull Elevation
0.00	95.75	89.32	91.21
15.00	94.19	89.32	91.21
19.00	93.25	89.32	91.21
28.80	92.30	89.32	91.21
52.00	92.63	89.32	91.21
85.00	91.39	89.32	91.21
96.30	90.19	89.32	91.21
114.00	91.27	89.32	91.21
125.00	92.23	89.32	91.21
147.00	92.58	89.32	91.21
181.50	90.82	89.32	91.21
186.00	90.06	89.32	91.21
200.50	91.22	89.32	91.21
211.00	91.40	89.32	91.21
218.20	89.64	89.32	91.21
230.80	89.46	89.32	91.21
234.70	89.32	89.32	91.21
248.00	88.46	89.32	91.21
253.00	88.24	89.32	91.21
259.30	87.97	89.32	91.21
265.70	88.23	89.32	91.21
273.60	88.19	89.32	91.21
277.90	87.59	89.32	91.21
280.60	87.43	89.32	91.21
284.00	87.61	89.32	91.21
287.00	88.37	89.32	91.21
288.50	89.32	89.32	91.21
291.00	94.27	89.32	91.21
300.00	94.76	89.32	91.21
322.00	94.60	89.32	91.21
358.00	95.35	89.32	91.21
422.00	98.28	89.32	91.21



Sulphur	7/9/01	Dist. From left stake	Total depth	Total Elevation	Bankfull Elevation	2xBankfull Notes
		0	5.46	94.54	87.7	89.68 TBM-LB
		5	6.71	93.29	87.7	89.68
		14.7	7.48	92.52	87.7	89.68 TOBL
		18.6	8.52	91.48	87.7	89.68
		44	9.18	90.82	87.7	89.68
		91	11.5	88.5	87.7	89.68
		98	11.56	88.44	87.7	89.68
		114	10.36	89.64	87.7	89.68
		125.6	9.3	90.7	87.7	89.68
		168	10.64	89.36	87.7	89.68
		186	11.51	88.49	87.7	89.68
		207.6	10.31	89.69	87.7	89.68
		230	12.17	87.83	87.7	89.68
		235.6	12.3	87.7	87.7	89.68 BFL
		250.5	13.41	86.59	87.7	89.68 LEW
		256.2	13.57	86.43	87.7	89.68
		264.4	13.52	86.48	87.7	89.68
		273.7	13.81	86.19	87.7	89.68
		279.5	14.28	85.72	87.7	89.68 T
		282.7	14.27	85.73	87.7	89.68
		286	13.71	86.29	87.7	89.68 REW
		287.7	12.3	87.7	87.7	89.68 BFR
		290.2	7.46	92.54	87.7	89.68 TOBR
		300	6.92	93.08	87.7	89.68
		328	7.26	92.74	87.7	89.68 End



sulfur crosection-3	7/30/03	Dist from left stake	Total Depth	Bankfull depth	Total elevation	Bankfull elevation	2x Bankfull elevation	Notes
		0	6.07	93.93	87.41	89.54	tbel	
		5	7.33	92.67	87.41	89.54		
		14.7	8.39	91.61	87.41	89.54	tbl	
		18.6	9.12	90.88	87.41	89.54		
		44	9.61	90.39	87.41	89.54		
		91	11.52	88.48	87.41	89.54		
		98	11.64	88.36	87.41	89.54		
		114	10.77	89.23	87.41	89.54		
		125.6	10.47	89.53	87.41	89.54		
		168	10.41	89.59	87.41	89.54		
		186	11.27	88.73	87.41	89.54		
		207.6	10.82	89.18	87.41	89.54		
		230	11.39	88.61	87.41	89.54		
		235.6	12.24	87.76	87.41	89.54		
		238.8	12.59	87.41	87.41	89.54	bfl	
		251	13.66	1.07	86.34	87.41	89.54	wel
		256.2	13.92	1.33	86.08	87.41	89.54	
		264.4	14.18	1.59	85.82	87.41	89.54	
		273.7	13.99	1.4	86.01	87.41	89.54	
		279.5	14.23	1.64	85.77	87.41	89.54	
		282.7	14.28	1.69	85.72	87.41	89.54	
		286	14.27	1.68	85.73	87.41	89.54	
		289.3	14.72	2.13	85.28	87.41	89.54	t
		293	13.71	1.12	86.29	87.41	89.54	wer
		294	12.59	0	87.41	87.41	89.54	bfr
		295	7.91		92.09	87.41	89.54	
		300	7.8		92.2	87.41	89.54	
		328	7.3		92.7	87.41	89.54	

TOPipe=Top of pipe/bench mark

LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TOPool=Top of pool

S-MAX=Max depth sediment lens

LB=Left bank

RB=Right bank

TOB=Top of bank

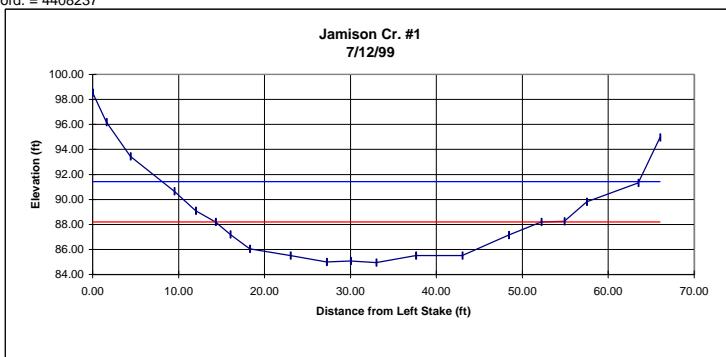
BF=Bankfull

T=Thalweg

Three Year SUMMARY	Cross- section	Mean Width	Max Bankfull Depth	Bankfull Depth	Depth Ratio	Flood-prone width	Entrenchment width	Ratio
1999	3	53.8	1.31	1.89	41.07	202.76	3.77	
2001	3	52.10	1.30	1.98	40.00	80.90	1.55	
2003	3	55.20	1.37	2.13	40.44	218.60	3.96	

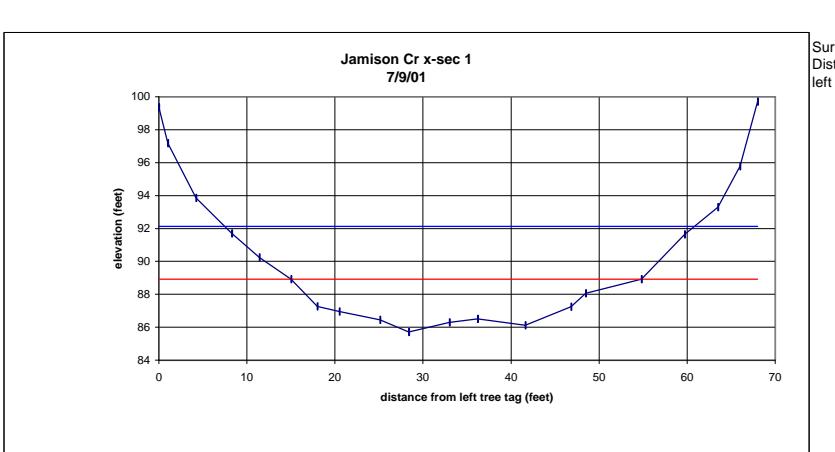
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UTM Y-coord. = 4408237

All measurements in feet

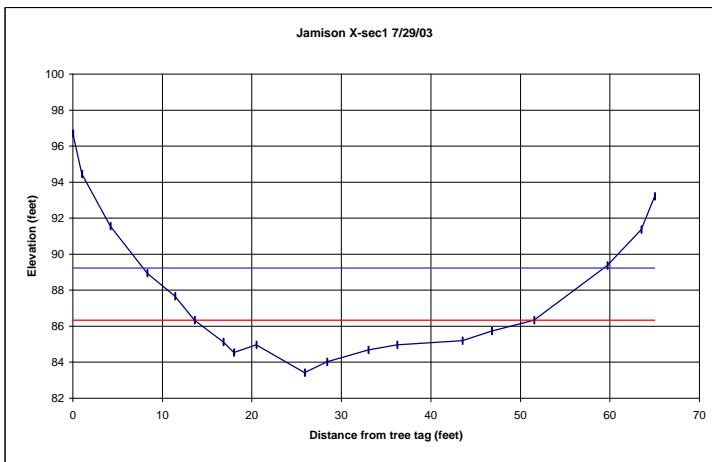


Blue Line=2x Bankfull Elev    Red Line=Mean Bankfull Elev    Dark Blue Line w/Markers=Basic Cross Section

Dist. From Left Stake	Total Elevation	Bankfull Elevation	2xBankfull Elevation
0.00	98.53	88.19	91.43
1.60	96.18	88.19	91.43
4.40	93.45	88.19	91.43
9.50	90.66	88.19	91.43
12.00	89.10	88.19	91.43
14.30	88.19	88.19	91.43
16.00	87.19	88.19	91.43
18.30	86.05	88.19	91.43
23.00	85.51	88.19	91.43
27.20	85.00	88.19	91.43
30.00	85.07	88.19	91.43
33.00	84.95	88.19	91.43
37.60	85.52	88.19	91.43
43.00	85.52	88.19	91.43
48.40	87.15	88.19	91.43
52.20	88.19	88.19	91.43
54.90	88.26	88.19	91.43
57.50	89.80	88.19	91.43
63.50	91.31	88.19	91.43
66.00	94.95	88.19	91.43



Survey 7/9/01	Dist. From Left Stake	Total Depth	Total Elevation	Bankfull Elevation	2xBankfull Notes
	0	0.64	99.36	88.92	92.13 TBM-LB
	1	2.82	97.18	88.92	92.13
	4.2	6.15	93.85	88.92	92.13
	8.3	8.31	91.69	88.92	92.13
	11.4	9.75	90.25	88.92	92.13
	15	11.08	88.92	88.92	92.13 BFL
	18	12.74	87.26	88.92	92.13 LEW
	20.5	13.05	86.95	88.92	92.13
	25.1	13.55	86.45	88.92	92.13
	28.4	14.29	85.71	88.92	92.13 T
	33	13.71	86.29	88.92	92.13
	36.2	13.5	86.5	88.92	92.13
	41.6	13.89	86.11	88.92	92.13
	46.8	12.76	87.24	88.92	92.13 REW
	48.5	11.94	88.06	88.92	92.13
	54.8	11.08	88.92	88.92	92.13 BFR
	59.7	8.35	91.65	88.92	92.13
	63.5	6.71	93.29	88.92	92.13
	66	4.22	95.78	88.92	92.13
	68	0.3	99.7	88.92	92.13 End



jamison crosection-1	7/29/03	2x				
Dist from left stake	Total Depth	Bankfull depth	Total elevation	Bankfull elevation	Bankfull elevation	Notes
0	3.3		96.7	86.33	89.23	tбл
1	5.55		94.45	86.33	89.23	
4.2	8.44		91.56	86.33	89.23	
8.3	11.05		88.95	86.33	89.23	
11.4	12.33		87.67	86.33	89.23	
13.6	13.67	0	86.33	86.33	89.23	bfl
16.8	14.88	1.21	85.12	86.33	89.23	wel
18	15.46	1.79	84.54	86.33	89.23	
20.5	15.04	1.37	84.96	86.33	89.23	
25.9	16.57	2.9	83.43	86.33	89.23	t
28.4	15.97	2.3	84.03	86.33	89.23	
33	15.32	1.65	84.68	86.33	89.23	
36.2	15.04	1.37	84.96	86.33	89.23	
43.5	14.8	1.13	85.2	86.33	89.23	wer
46.8	14.26	0.59	85.74	86.33	89.23	
51.5	13.67	0	86.33	86.33	89.23	bfr
59.7	10.63		89.37	86.33	89.23	
63.5	8.64		91.36	86.33	89.23	
65	6.79		93.21	86.33	89.23	

TOPipe=Top of pipe/bench mark

LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TOPool=Top of pool

S-MAX=Max. depth sediment lens

LB=Left bank

RB=Right bank

TOB=Top of bank

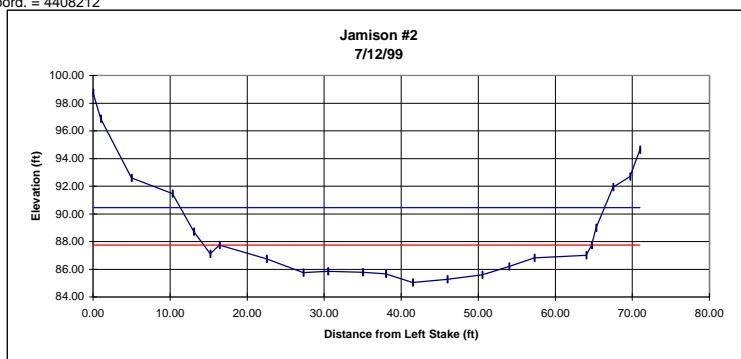
BF=Bankfull

T=Thalweg

Three Year SUMMARY		Mean	Max	Width:	Flood-prone	Entrenchment
Year	Cross-section	Bankfull Width	Bankfull Depth	Bankfull Depth	width	Ratio
1999	1	37.90	2.42	3.24	15.68	55.49
2001	1	39.80	1.97	3.21	20.20	52.40
2003	1	37.90	1.43	2.90	26.50	50.80

UTM X-coord. = 698580  
UTM Y-coord. = 4408212

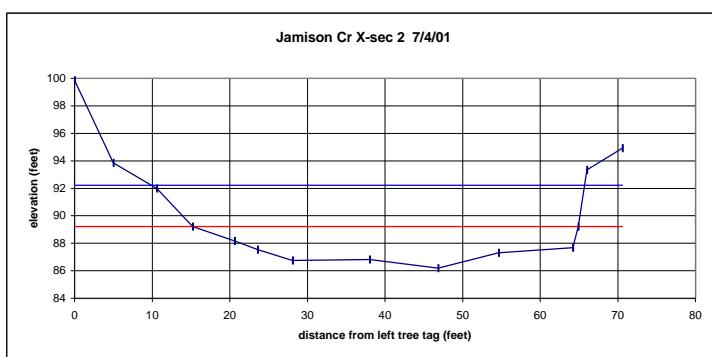
all measurements in feet



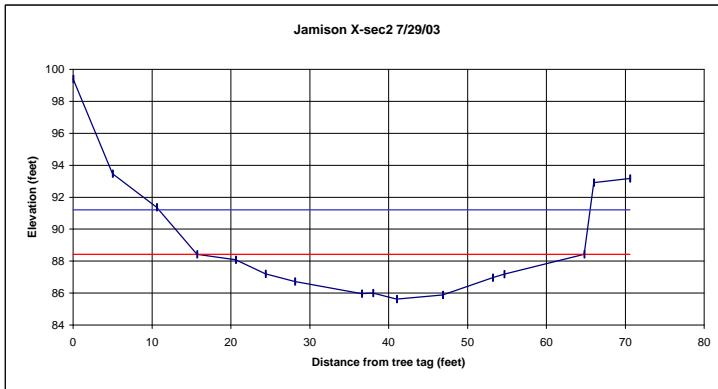
Blue Line=2x Bankfull Elev

Dark Blue Line w/Markers=Basic Cross Section

Dist. From Left Stake	Total depth	Bankfull elevation	2xBankfull elevation
0.00	98.76	87.75	90.46
1.00	96.87	87.75	90.46
5.00	92.60	87.75	90.46
10.30	91.47	87.75	90.46
13.10	88.72	87.75	90.46
15.20	87.12	87.75	90.46
16.40	87.75	87.75	90.46
22.50	86.75	87.75	90.46
27.30	85.76	87.75	90.46
30.50	85.86	87.75	90.46
35.00	85.78	87.75	90.46
38.00	85.66	87.75	90.46
41.50	85.04	87.75	90.46
46.00	85.28	87.75	90.46
50.50	85.60	87.75	90.46
54.00	86.20	87.75	90.46
57.30	86.81	87.75	90.46
64.00	87.01	87.75	90.46
64.70	87.75	87.75	90.46
65.30	88.99	87.75	90.46
67.50	91.92	87.75	90.46
69.70	92.70	87.75	90.46
71.00	94.63	87.75	90.46



Jamison		7/9/01		
Dist. from left stake	Total depth	Total elevation	Bankfull elevation	2xBankfull Notes
0	0.14	99.86	89.21	92.23 TBM-LB
5	6.14	93.86	89.21	92.23
10.6	8.02	91.98	89.21	92.23
15.2	10.79	89.21	89.21	92.23 BFL
20.6	11.83	88.17	89.21	92.23 LEW
23.6	12.45	87.55	89.21	92.23
28.1	13.25	86.75	89.21	92.23
38	13.18	86.82	89.21	92.23
46.85	13.81	86.19	89.21	92.23 T
54.65	12.7	87.3	89.21	92.23 REW
64.2	12.32	87.68	89.21	92.23
64.9	10.79	89.21	89.21	92.23 BFR
66	6.66	93.34	89.21	92.23
70.6	5.08	94.92	89.21	92.23 TBM-RB



jamison crossection-2  
7/29/03

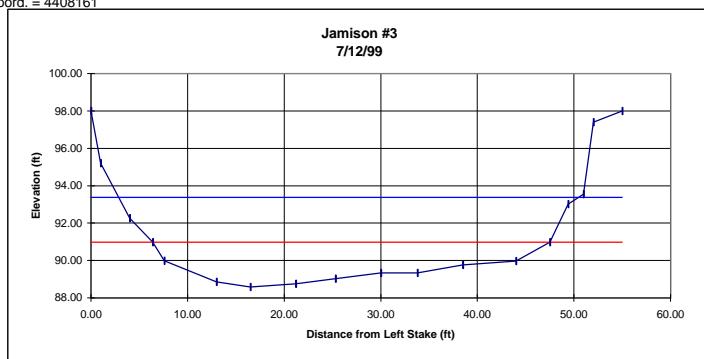
jamison crossection-2		2x		
Dist from left stake	Total depth	Bankfull depth	Total elevation	Bankfull elevation
0	0.6		99.4	88.42 91.21 tbml
5	6.52		93.48	88.42 91.21
10.6	8.64		91.36	88.42 91.21
15.7	11.58	0	88.42	88.42 91.21 bfl
20.6	11.92	0.34	88.08	88.42 91.21
24.4	12.79	1.21	87.21	88.42 91.21 wel
28.1	13.28	1.7	86.72	88.42 91.21
36.6	14.04	2.46	85.96	88.42 91.21
38	13.99	2.41	86.01	88.42 91.21
41	14.37	2.79	85.63	88.42 91.21 t
46.85	14.12	2.54	85.88	88.42 91.21
53.2	13.03	1.45	86.97	88.42 91.21 wer
54.65	12.81	1.23	87.19	88.42 91.21
64.8	11.58	0	88.42	88.42 91.21 bfr
66	7.09		92.91	88.42 91.21
70.6	6.83		93.17	88.42 91.21 endr

TOPipe=Top of pipe/bench mark  
LEW=Left edge of water  
REW=Right edge of water  
MPD=Maximum pool depth  
TBM=Temporary bench mark  
PCT=Pool tail crest  
TP=Turning point  
TOPool=Top of pool  
S-MAX=Max. depth sediment lense  
LB=Left bank  
RB=Right bank  
TOB=Top of bank  
BF=Bankfull  
T=Thalweg

Three Year SUMMARY		Mean	Max	Width:	Flood-prone	Entrench-
Year	Cross-section	Bankfull Width	Bankfull Depth	Bankfull Depth	width	ment Ratio
1999	2	48.30	1.77	2.71	27.25	55.08 1.14
2001	2	49.70	1.75	3.02	28.40	54.85 1.10
2003	2	49.10	1.61	2.79	30.44	54.00 1.10

UTM X-coord. = 698613  
UTM Y-coord. = 4408161

all measurements in feet

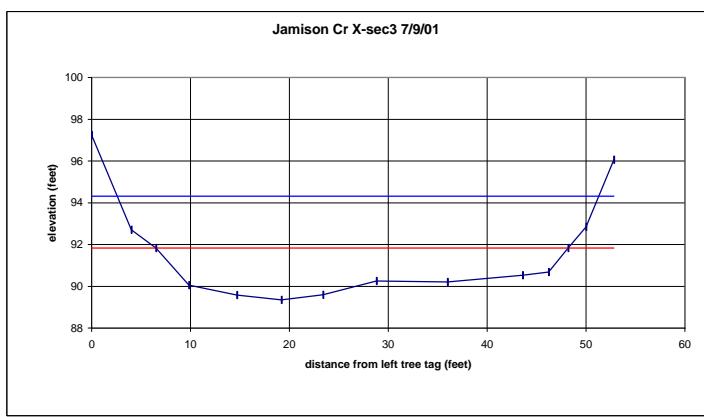


Dist. From Left Stake	Total Depth	Bankfull Elevation	2xBankfull Elevation
0.00	98.00	90.98	93.37
1.00	95.20	90.98	93.37
4.00	92.26	90.98	93.37
6.40	90.98	90.98	93.37
7.60	89.98	90.98	93.37
13.00	88.85	90.98	93.37
16.50	88.59	90.98	93.37
21.20	88.75	90.98	93.37
25.30	89.03	90.98	93.37
30.00	89.33	90.98	93.37
33.80	89.33	90.98	93.37
38.50	89.76	90.98	93.37
44.00	89.97	90.98	93.37
47.50	90.98	90.98	93.37
49.40	93.01	90.98	93.37
51.00	93.55	90.98	93.37
52.00	97.39	90.98	93.37
55.00	98.00	90.98	93.37

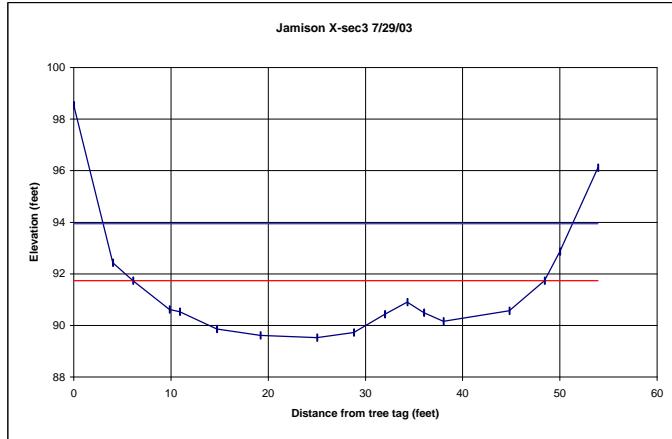
Blue Line=2x Bankfull Elev

Red Line=Mean Bankfull Elev

Dark Blue Line w/Markers=Basic Cross Section



Dist. From Left Stake	Total Depth	Total Elevation	Bankfull Elevation	2xBankfull Notes
0	2.76	97.24	91.83	94.31 TBM-LB
4	7.3	92.7	91.83	94.31
6.5	8.17	91.83	91.83	94.31 BFL
9.85	9.94	90.06	91.83	94.31 LEW
14.7	10.42	89.58	91.83	94.31
19.2	10.65	89.35	91.83	94.31 T
23.4	10.41	89.59	91.83	94.31
28.8	9.75	90.25	91.83	94.31
36	9.79	90.21	91.83	94.31 REW
43.6	9.47	90.53	91.83	94.31
46.2	9.32	90.68	91.83	94.31
48.2	8.17	91.83	91.83	94.31 BFR
50	7.16	92.84	91.83	94.31
52.8	3.94	96.06	91.83	94.31 TBM-RB



Dist from left stake	Total Depth	Bankfull depth	Total elevation	bankfull elevation	2x Bankfull elevation	Notes
0	1.46	0	98.54	91.74	93.95	ttml
4	7.57	0	92.43	91.74	93.95	
6.1	8.26	0	91.74	91.74	93.95	bfl
9.85	9.38	1.12	90.62	91.74	93.95	
10.9	9.47	1.21	90.53	91.74	93.95	wel
14.7	10.14	1.88	89.86	91.74	93.95	
19.2	10.39	2.13	89.61	91.74	93.95	
25	10.47	2.21	89.53	91.74	93.95	t
28.8	10.27	2.01	89.73	91.74	93.95	
32	9.57	1.31	90.43	91.74	93.95	gbr
34.3	9.1	0.84	90.9	91.74	93.95	gbr
36	9.5	1.24	90.5	91.74	93.95	gbr
38	9.84	1.58	90.16	91.74	93.95	
44.8	9.43	1.17	90.57	91.74	93.95	wer
48.4	8.26	0	91.74	91.74	93.95	bfr
50	7.13	0	92.87	91.74	93.95	
53.9	3.88	0	96.12	91.74	93.95	endr

TOPipe=Top of pipe/bench mark  
LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TOPool=Top of pool

S-MAX=Max. depth sediment lense

LB=Left bank

RB=Right bank

TOB=Top of bank

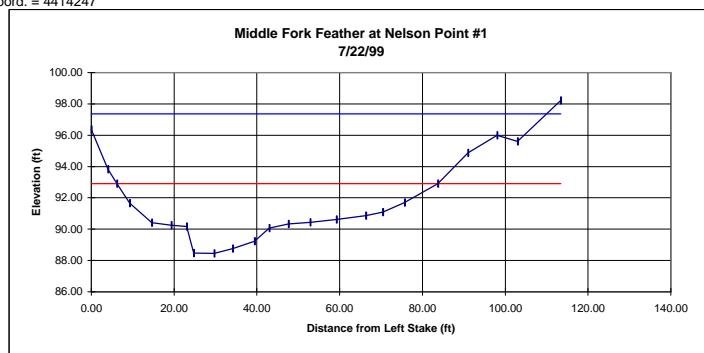
BF=Bankfull

T=Thalweg

Year	Cross-section	Mean	Max	Width:	Flood-prone	Entrench-
		Width	Bankfull	Bankfull	Depth	ment
1999	3	41.10	1.69	2.39	24.29	47.60
2001	3	41.70	1.59	2.48	26.22	48.30
2003	3	42.30	1.39	2.21	30.40	47.90

UTM X-coord. = 683463  
UTM Y-coord. = 4414247

All measurements are in feet

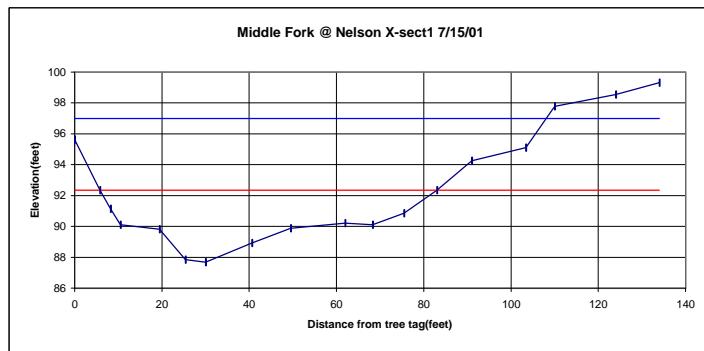


Blue Line=2x Bankfull Elev

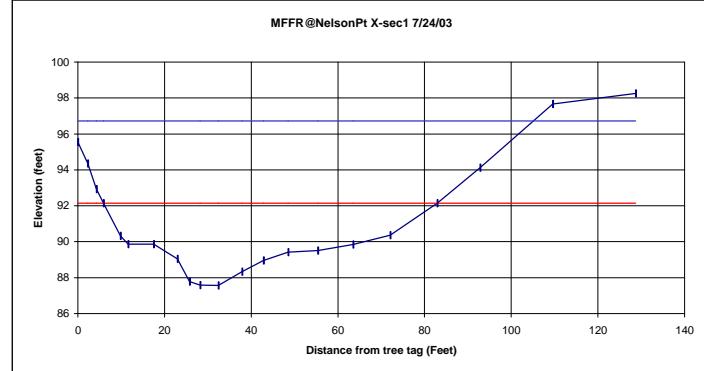
Red Line=Mean Bankfull Elev

Dark Blue Line w/Markers=Basic Cross Section

Dist. From Total	Bankfull	2xBankfull
Left Stake	Elevation	Elevation
0.00	96.36	92.91
4.00	93.82	92.91
6.20	92.91	92.91
9.30	91.66	92.91
14.60	90.41	92.91
19.30	90.25	92.91
23.00	90.16	92.91
24.70	88.48	92.91
29.70	88.45	92.91
34.20	88.76	92.91
39.40	89.22	92.91
43.00	90.07	92.91
47.60	90.34	92.91
52.90	90.44	92.91
59.20	90.62	92.91
66.30	90.86	92.91
70.40	91.09	92.91
75.70	91.70	92.91
83.70	92.91	92.91
91.00	94.88	92.91
98.00	96.00	92.91
103.00	95.60	92.91
113.40	98.22	92.91
		97.37



MFRR Nelson	7/15/01		
Dist. From Total	Total	Bankfull	2xBankfull Notes
left stake depth	Elevation	Elevation	Elevation
0	4.38	95.62	92.34
5.8	7.66	92.34	96.99 TBM-LB
8.2	8.86	91.14	96.99 BFL
10.5	9.89	90.11	96.99 LEW
19.4	10.19	89.81	92.34
25.4	12.16	87.84	92.34
30	12.31	87.69	92.34
40.6	11.08	88.92	92.34
49.5	10.13	89.87	92.34
62	9.8	90.2	92.34
68.3	9.9	90.1	92.34
75.5	9.14	90.86	92.34
83	7.66	92.34	96.99 BFR
91	5.75	94.25	92.34
103.4	4.89	95.11	92.34
110	2.21	97.79	92.34
124	1.45	98.55	92.34
134	0.68	99.32	92.34
			96.99 TBM-RB



mffr at nelson crossect-1	7/24/03					
Dist from left stake	Total Depth	Bankfull depth	Total Bankfull elevation	Bankfull elevation	2x Bankfull elevation	Notes
0	4.45		95.55	92.14	96.72 tbml	
2.3	5.64		94.36	92.14	96.72	
4.3	7.08		92.92	92.14	96.72	
5.9	7.86	0	92.14	92.14	96.72 bfl	
9.8	9.68	1.82	90.32	92.14	96.72 wel	
11.6	10.13	2.27	89.87	92.14	96.72	
17.5	10.13	2.27	89.87	92.14	96.72	
23	10.95	3.09	89.05	92.14	96.72	
25.8	12.21	4.35	87.79	92.14	96.72	
28.2	12.42	4.56	87.58	92.14	96.72	
32.4	12.44	4.58	87.56	92.14	96.72 t	
37.9	11.66	3.8	88.34	92.14	96.72	
42.8	11.05	3.19	88.95	92.14	96.72	
48.5	10.58	2.72	89.42	92.14	96.72	
55.4	10.49	2.63	89.51	92.14	96.72	
63.5	10.16	2.3	89.84	92.14	96.72	
72.1	9.63	1.77	90.37	92.14	96.72 wer	
82.9	7.86	0	92.14	92.14	96.72 bfr	
92.8	5.87		94.13	92.14	96.72	
	109.6	2.34	97.66	92.14	96.72	
	128.7	1.74	98.26	92.14	96.72 endr	

TOPipe=Top of pipe/bench mark

LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TOPool=Top of pool

S-MAX=Max. depth sediment lense

LB=Left bank

RB=Right bank

TOB=Top of bank

BF=Bankfull

T=Thalweg

Three Year SUMMARY		Mean	Max	Width:	Flood-prone	Entrenchment
Year	Cross-section	Bankfull Width	Bankfull Depth	Bankfull Depth	width	Ratio
1999	1	77.50	2.74	4.46	110.03	1.42
2001	1	77.20	2.44	4.65	108.00	1.40
2003	1	77.00	2.81	4.58	113.70	1.48

#### 2003 ENTRENCHMENT

bankfull width 77  
max bankfull depth 4.58 floodprone width  
2x max bankfull depth 9.16 right bank left bank

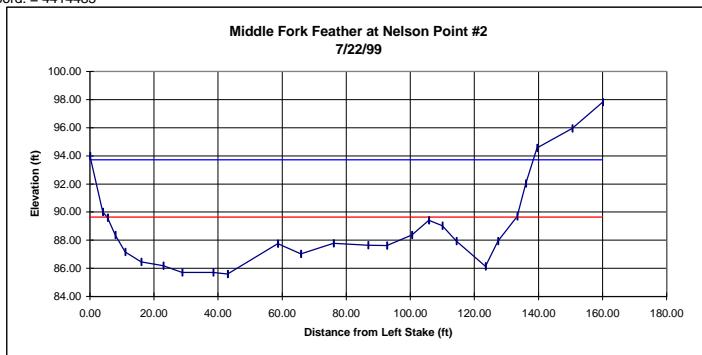
width at c 113.7 108.3 5.4

entrenchment ratio=D/ 1.48

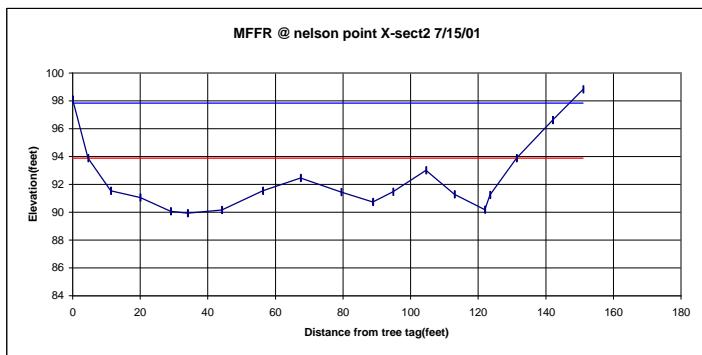
#### 2003 WIDTH TO DEPTH RATIO

mean bank 2.81  
width: dept 27.40

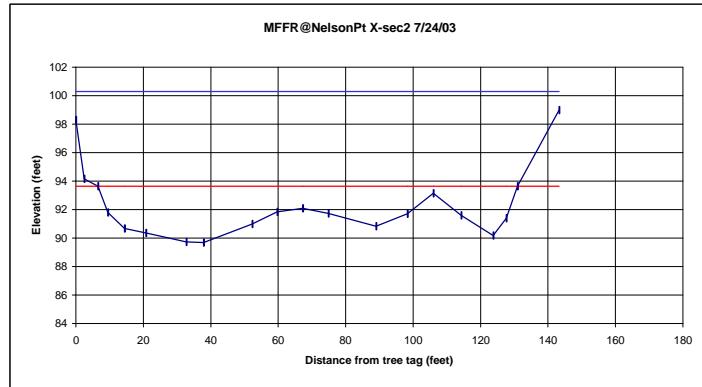
UTM X-coord. = 683461  
UTM Y-coord. = 4414485



Blue Line=2x Bankfull Elev    Red Line=Mean Bankfull Elev    Dark Blue Line w/Markers=Basic Cross Section



MFFR Nelson		7/15/01		
Dist. From Total left stake	Total depth	Total Elevation	Bankfull Elevation	2xBankfull Notes
0	1.91	98.09	93.89	97.85 TBM-LB
4.5	6.11	93.89	93.89	97.85 BFL
11.3	8.46	91.54	93.89	97.85 LEW
20	8.94	91.06	93.89	97.85
29	9.93	90.07	93.89	97.85
34	10.07	89.93	93.89	97.85 T
44.1	9.84	90.16	93.89	97.85
56.2	8.45	91.55	93.89	97.85 REW
67.4	7.53	92.47	93.89	97.85
79.4	8.56	91.44	93.89	97.85 LEW
88.8	9.27	90.73	93.89	97.85
94.8	8.52	91.48	93.89	97.85 REW
104.5	6.98	93.02	93.89	97.85
113	8.71	91.29	93.89	97.85 LEW
122	9.81	90.19	93.89	97.85
123.5	8.75	91.25	93.89	97.85 REW
131.3	6.11	93.89	93.89	97.85 BFR
142	3.37	96.63	93.89	97.85
151	1.18	98.82	93.89	97.85



mffr at nelson crossect-2		7/24/03		
Dist from Total left stake	Total Depth	Bankfull depth	Total elevation	Bankfull elevation
0	1.7		98.3	93.64
2.5	5.85		94.15	93.64
6.5	6.36	0	93.64	93.64
9.5	8.2	1.84	93.64	93.64
14.4	9.33	2.97	90.67	93.64
20.8	9.63	3.27	90.37	93.64
32.7	10.26	3.9	89.74	93.64
37.9	10.32	3.96	89.68	93.64
52.3	9.02	2.66	90.98	93.64
59.7	8.16	1.8	91.84	93.64
67.3	7.91	1.55	92.09	93.64
74.9	8.26	1.9	91.74	93.64
89	9.17	2.81	90.83	93.64
98.3	8.29	1.93	91.71	93.64
106	6.85	0.49	93.15	93.64
114.2	8.4	2.04	91.6	93.64
123.7	9.82	3.46	90.18	93.64
127.6	8.6	2.24	91.4	93.64
130.9	6.36	0	93.64	93.64
143.3	1.02		98.98	93.64

TOPipe=Top of pipe/bench mark

LEW=Left edge of water

REW=Right edge of water

MPD=Maximum pool depth

TBM=Temporary bench mark

PCT=Pool tail crest

TP=Turning point

TOPool=Top of pool

S-MAX=Max depth sediment lens

LB=Left bank

RB=Right bank

TOB=Top of bank

BF=Bankfull

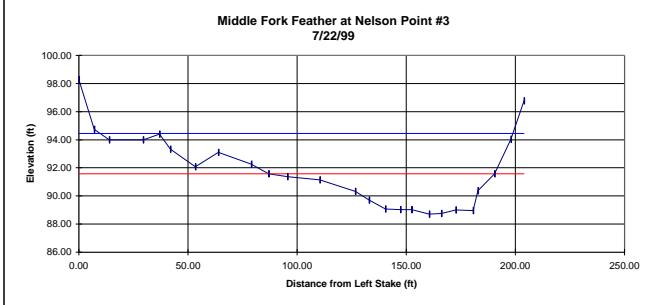
T=Thalweg

Three Year SUMMARY		Mean	Max	Width:	Flood-	Entrench-
Year	Cross- section	Bankfull Width	Bankfull Depth	Depth Ratio	prone width	ment
1999	2	127.90	2.28	4.01	55.99	138.02
2001	2	126.80	2.55	3.96	49.70	145.00
2003	2	124.40	2.30	3.96	54.06	138.60

UTM X-coord. = 683697  
UTM Y-coord. = 4414529

All measurements are in feet

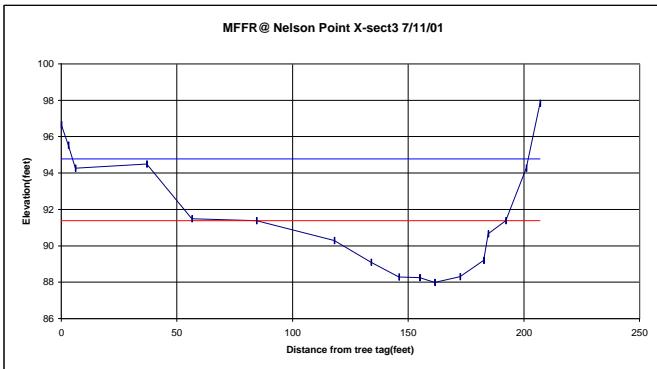
Dist. From Total UTM X-coord. = 683698  
Left Stake Elevation UTM Y-coord. = 4414530



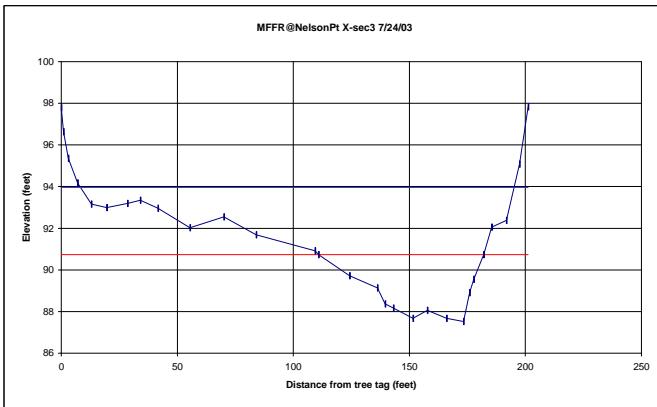
Blue Line=2x Bankfull Elev

Red Line=Mean Bankfull Elev

Dark Blue Line w/Markers=Basic Cross Section



MFRR Nelson 7/15/01					
Dist. From Total	Total	Bankfull	2xBankfull	Notes	Elevation
left stake depth	Elevation	Elevation	Elevation		Elevation
0	3.35	96.65	91.38	94.78 TBM-LB	
3	4.46	95.54	91.38	94.78	
6.1	5.74	94.26	91.38	94.78	
37	5.5	94.5	91.38	94.78	
56.4	8.52	91.48	91.38	94.78	
84.4	8.62	91.38	91.38	94.78 BFL	
118	9.7	90.3	91.38	94.78	
133.9	10.9	89.1	91.38	94.78 LEW	
146	11.72	88.28	91.38	94.78	
154.9	11.74	88.26	91.38	94.78	
161.5	12.02	87.98	91.38	94.78 T	
172.4	11.69	88.31	91.38	94.78	
182.6	10.8	89.2	91.38	94.78 REW	
184.5	9.34	90.66	91.38	94.78	
192.15	8.62	91.38	91.38	94.78 BFR	
201	5.74	94.26	91.38	94.78	
207	2.16	97.84	91.38	94.78 TBM-RB	



Dist from Total left stake	Depth	Bankfull depth	Total elevation	2x Bankfull		Notes
				Bankfull elevation	Bankfull elevation	
0	2.21		97.79	90.74	93.96 tbml	
0.9	3.36		96.64	90.74	93.96	
3	4.64		95.36	90.74	93.96	
7	5.82		94.18	90.74	93.96 tobl	
13	6.84		93.16	90.74	93.96	
19.6	7		93	90.74	93.96	
28.5	6.81		93.19	90.74	93.96	
34	6.65		93.35	90.74	93.96	
41.7	7.04		92.96	90.74	93.96	
55.5	7.97		92.03	90.74	93.96	
70	7.46		92.54	90.74	93.96	
84	8.32		91.68	90.74	93.96	
109.3	9.09		90.91	90.74	93.96 bfl	A
110.8	9.26	0	90.74	90.74	93.96 bfl	B
124.2	10.28	1.02	89.72	90.74	93.96	C
136.2	10.86	1.6	89.14	90.74	93.96 wel	D
139.5	11.63	2.37	88.37	90.74	93.96	
143.2	11.83	2.57	88.17	90.74	93.96	
151.5	12.32	3.06	87.68	90.74	93.96	
157.8	11.94	2.68	88.06	90.74	93.96	
166	12.33	3.07	87.67	90.74	93.96	
173.3	12.48	3.22	87.52	90.74	93.96 t	
176	11.09	1.83	88.91	90.74	93.96 wer	
177.8	10.45	1.19	89.55	90.74	93.96	
182	9.26	0	90.74	90.74	93.96 bfr	
185.5	7.94		92.06	90.74	93.96	
191.8	7.62		92.38	90.74	93.96	
197.5	4.92		95.08	90.74	93.96	
201.2	2.16		97.84	90.74	93.96 endr	

TOPipe=Top of pipe/bench mark  
LEW=Left edge of water  
REW=Right edge of water  
MPD=Maximum pool depth  
TBM=Temporary bench mark  
PCT=Pool tail crest  
TP=Turning point  
TOPool=Top of pool  
S-MAX=Max depth sediment lens  
LB=Left bank  
RB=Right bank  
TOB=Top of bank  
BF=Bankfull  
T=Thalweg

Year	Cross-section	Mean	Max	Width:	Flood-prone	Entrenchment
		Bankfull width	Bankfull depth	Bankfull depth	Depth	
1999	3	103.50	1.95	2.87	53.05	189.01 1.83
2001	3	107.75	2.10	3.40	51.30	197.90 1.83
2003	3	71.20	2.06	3.22	34.64	185.10 2.60

#### 2003 ENTRENCHMENT

bankfull width 71.2  
max bankfull depth 3.22 floodprone width  
2x max bankfull depth 6.44 right bank left bank  
width at c 185.1 195.1 10

entrenchment ratio=D/  
2.60

#### 2003 WIDTH TO DEPTH RATIO

Bankfull width 71.2

mean bankfull depth 2.06

width: depthratio=A/B 34.64